

# **CONCEPTUAL LEVEL TYPE A HYDRAULIC REPORT**

## **SR 3/ SR 16/ SR 166, GORST VICINITY – REMOVE FISH BARRIERS**

SR 3 MP 32.1, SR 3 MP 34.27, SR 16 MP 28.6, SR 16 MP 27.1,  
SR 166 MP 4.52  
XL-6547, PIN 300398H

**Washington State Department of Transportation  
Olympic Region  
Tumwater, Washington**

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# 1 PROJECT OVERVIEW

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The purpose of this project is to replace five existing culverts with fish passable structures to improve fish passage while providing a safe roadway for traveling public. The existing structure at these locations have been identified as fish passage barriers and will be replaced under the United States, et al. vs. Washington, et al. No. C70-9213 Subproceeding No 01-1 dated March 29, 2013. This is a federal permanent injunction requiring the State of Washington to correct fish barriers in Water Resources Inventory Areas (WRIAs) 1 to 23.

The project will cover improvements at the following five crossing sites located in Kitsap County:

- Site No. 990168 – State Route (SR) 3 Mile Post (MP) 32.10 – Gorst Creek (Crossing A). Existing 4-foot by 4-foot and 160-foot long box culvert is to be replaced with a bridge.
- Site No. 991585 – SR 3 MP 34.27 – Unnamed Tributary (UNT) to Gorst Creek (Crossing B). Existing 3-foot-diameter culvert is to be replaced with a three-sided box culvert.
- Site No. 991670 – SR 16 MP 28.60 – Kabelac Creek (Crossing C). Existing 2.5-foot-diameter concrete culvert is to be replaced with a bridge.
- Site No. 990270 – SR 16 MP 27.10 – UNT to Ross Creek (Crossing D). Existing 4-foot-diameter corrugated metal pipe (CMP) culvert is to be replaced with a bridge.
- Site No. 15.0201 0.90 – SR 166 MP 4.52 – Olney Creek (Crossing E). Existing 4-foot by 4-foot concrete box culvert is to be replaced with a bridge.

The general work activities will consist of earthwork, structure installation, roadway restoration and paving, streambed restoration, stormwater management, maintenance of traffic, utilities relocation, and erosion and sediment control.

## 1.1 SITE LOCATION

The crossings are located along SR 3, SR 16, and SR 166 in the following locations.

- Crossing A, SR 3 MP 32.10, is located half in the City of Bremerton on the southwestern side of the project, and half in unincorporated Kitsap County on the northeastern side.
- Crossing B, SR 3 MP 34.27, is located entirely in unincorporated Kitsap County.
- Crossing C, SR 16 MP 28.60, is located in unincorporated Kitsap County along SR 16 and north of SR 16, and in the City of Bremerton in the area south of SR 16.
- Crossing D, SR 16 MP 27.10, is located in unincorporated Kitsap County on the northwestern side of the project and in the City of Port Orchard in the southeast.
- Crossing E, SR 166 MP 4.52, is located in the City of Port Orchard along SR 166 and north of SR 166, and in unincorporated Kitsap County in the area south of SR 166.

The legal descriptions of the project areas are in Township 23N, Range 1W, Section 1 (Crossing A), and Township 24N, Range 1E, Sections 32 (Crossing B), 33 (Crossing C), 34 (Crossing D), and Sections 25 and 36 (Crossing E) of the Willamette Meridian.

SR 3 is classified as Urban Principal Arterial at Crossings A and B. SR 16 is also classified as Urban Principal Arterial at Crossings C and D. SR 166 is classified as an Urban Minor Arterial at Crossing E. Based on the 2020 Washington State Highway Log, all sites are classified as traversing rolling terrain.

The project is located in Kitsap County in the Kitsap Watershed (WRIA 15). The land surrounding the project is mostly rural wooded, urban industrial, and urban high intensity commercial/mixed use (based on 2022 Kitsap County Comprehensive Plan: Land Use Map).

**Table 1-1** summarizes details of the five crossings.

**TABLE 1-1. PROJECT LOCATION**

State Route	Mile Post	Crossing ID	Crossing Reference Name	Receiving Waters
SR 3	32.10	A	Gorst Creek	Gorst Creek, which discharges to Sinclair Inlet (Puget Sound)
SR 3	34.27	B	UNT to Gorst Creek	UNT to Gorst Creek, which discharges to Gorst Creek and then Sinclair Inlet (Puget Sound)
SR 16	28.60	C	Kabelac Creek	Kabelac Creek, which discharges to Sinclair Inlet (Puget Sound)
SR 16	27.10	D	UNT to Ross Creek	UNT to Ross Creek, which discharges to Ross Creek and then Sinclair Inlet (Puget Sound)
SR 166	4.52	E	Olney Creek	Olney Creek, which discharges to Sinclair Inlet (Puget Sound)

## 1.2 VICINITY MAP

The project includes five different crossings on three different state routes in two cities and unincorporated Kitsap County, all of which are shown on **Figure 1-1**.

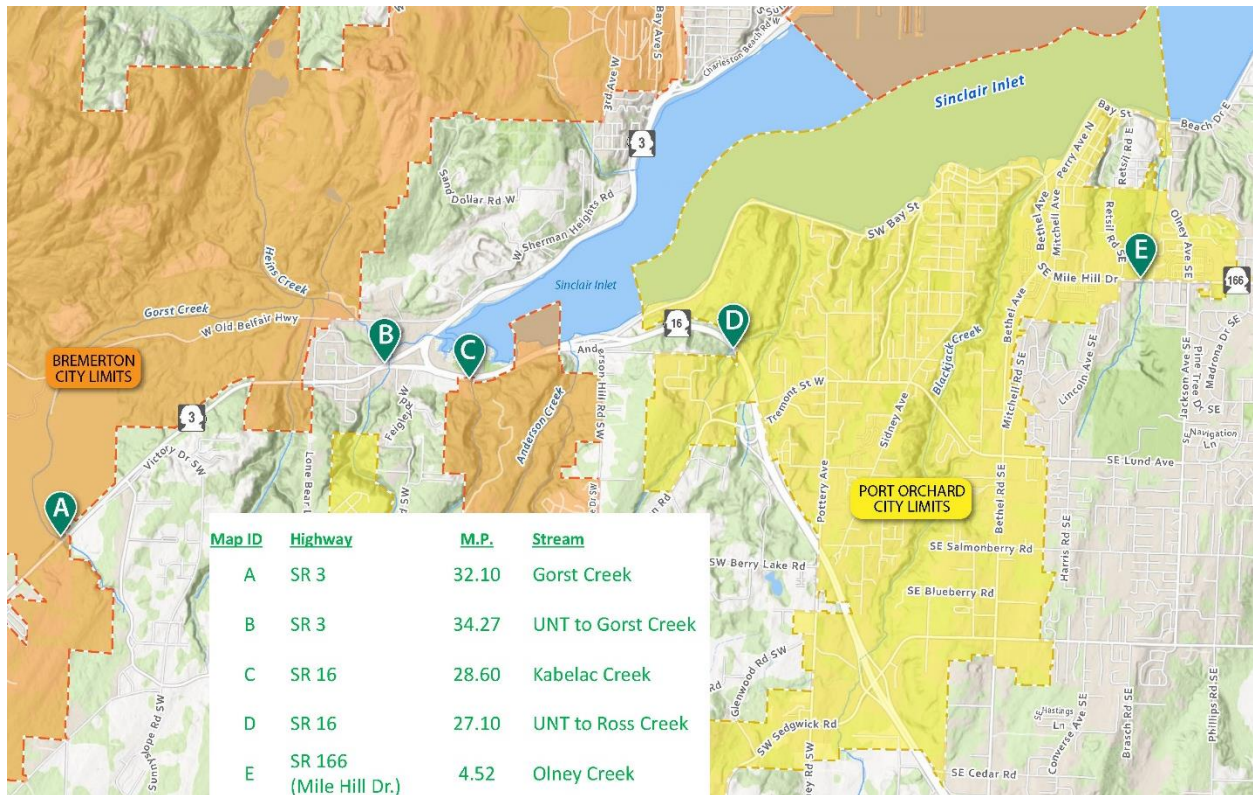


FIGURE 1-1. PROJECT VICINITY MAP

### 1.3 SCOPE OF WORK

This project will address five identified fish barrier crossings along SR 3, SR 16, and SR 166, all of which will be removed and are proposed to be replaced by either bridges or a fish passable culvert, resulting in roadway improvements that trigger stormwater requirements.

The work for this project will trigger requirements from the Washington State Department of Transportation (WSDOT) 2019 Highway Runoff Manual (HRM), the Endangered Species Act (ESA) Consultation, and the Stormwater Retrofit for Fish Barrier Projects. The project is within the Puget Sound basin as defined in the HRM. Therefore, the HRM Puget Sound Stormwater Retrofit requirements apply to all the crossings within this project.

This hydraulic report describes the existing conditions at the site, existing stormwater flow patterns and facilities, threshold discharge areas (TDAs), and stormwater minimum requirements applicable to each site based on the proposed project improvements and project limits.

The proposed new impervious surfaces, new pollutant-generating impervious surfaces (PGIS), non-pollutant-generating impervious surfaces (NPGIS), and existing impervious areas have been estimated for the project based on the conceptual roadway design to identify the minimum requirements applicable at the project level and at the TDA level. **Appendix A-2** provides exhibits showing the TDA limits and their downstream flow paths. **Section 2** discusses the existing conditions, and **Section 3** provides a summary of the stormwater requirements applicable to the project level and at the TDA level based on the conceptual and preliminary area estimates. It is anticipated that additional WSDOT right-of-way will be necessary to meet the Mandatory Standards, Technical Requirements, and the stormwater minimum requirements for Crossings B and C.

The Conceptual Level Hydraulic Report is not complete and shall only be used as a reference. This report does not include proposed hydrologic and hydraulic design elements.

The design and construction of all hydraulic elements are the responsibility of the Design Builder. The Design Builder has the option of using the information from the Conceptual Level Hydraulic Report to help create the Design-Builder's Preliminary Hydraulic Report and subsequent submittals as per the project Request for Proposal (RFP) Technical Requirement Chapter 2.14 *Stormwater*. Although this report covers all five crossings, the Design Builder shall follow the submittal requirements noted in the RFP Technical Requirement Chapter 2.14 *Stormwater*. The Design Builder shall verify all data, assumptions, calculations, requirements, analysis, and conclusions from the Conceptual Hydraulic Report if used in the Design Builder's Preliminary Hydraulic Report, Intermediate Hydraulic Report, Final Hydraulic Report, or any intermediate drainage design packages.

## **1.4 SPECIALTY DESIGN**

Preliminary Hydraulic Design Reports (PHDs) for each stream crossing are included in the RFP Appendix H.

## 2 SITE CONDITIONS

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An assessment of the existing site conditions has been conducted through a review of available information including the following:

- Existing WSDOT base map files
- WSDOT as-built documents
- WSDOT Stormwater Discharge Point Inventory data
- WSDOT Traffic Geoportal
- Geographic Information System (GIS) stormwater system maps from Kitsap County
- Basin and water quality data from Washington State Department of Ecology (Ecology)
- Water supply well information from the Washington State Department of Health
- Wetland Inventory Information from the US Fish and Wildlife Service Wetlands Mapper

The available background information was reviewed with respect to the existing conditions to define major drainage patterns that exist within each crossing. A site visit was also conducted on March 24, 2023, to observe the existing drainage systems, outfalls, and downstream conditions to the extent feasible. Based on this information, TDAs have been delineated for each crossing within the project as shown in **Appendix A-2**.

### 2.1 EXISTING CONDITIONS

At Crossing A, Gorst Creek, SR 3 has a low point 185 feet southwest of the existing box culvert. SR 3 is a crowned roadway with the crest at the center line. Flows draining off either side of the road are generally collected in roadside ditches that convey the flow down to Gorst creek. At the crossing itself, there is a steep drop off down to the creek on both sides of the road. Gorst Creek flows from southeast to northwest and most of the surrounding area is heavily forested. The posted speed limit at the project site is 50 miles per hour (mph) based on the Washington State Highway Log.

Near Crossing B, UNT to Gorst Creek, SR 3 and SR 16 meet and the existing culvert runs underneath the intersection of the two state routes and the off ramp going northeast from SR 3 to SR 16. The flows on the main stretch of SR 3 flow toward the northeast while the SR 16 spur road conveys flows away from the crossing to the east. The SR 3 roadway is generally crowned so runoff flows off the road and into roadside ditches or existing storm drain systems. W Sam Christopherson Ave is draining away from the project location to the north. On the southern side of the crossing as well as the eastern side of the project, the surrounding land use is mainly commercial businesses while the northern and western sides of the project are residential. The posted speed limit at the project site is 40 mph based on the Washington State Highway Log.

At Crossing C, Kabelac Creek, SR 16 is divided by a barrier between the eastbound and westbound lanes. SR 16 is superelevated and sloping to the north within the project limits. Flows from the eastbound lanes are presumed to collect along the southern side of the barrier and flow through the openings at the barrier joints into the westbound lanes, as there are no drainage structures along the barrier. The cross culvert conveying the creek is located approximately 70 feet west from a high point in the road. A small section of the road near the high point drains to Kabelac Creek which discharges to Sinclair Inlet. The majority of the roadway runoff is conveyed east and west from the high point through storm drains along the northern side of the road and is eventually piped to the north to Sinclair Inlet. The surrounding land use consists mainly of commercial businesses. The posted speed limit on both SR 3 and SR 16 at the

project site is 40 mph based on the Washington State Highway Log. On the north side of the SR 16 crossing, Kabelac Creek continues north through enclosed storm drains under a private commercial property for approximately 390 feet before discharging to an open channel. Portions of the parking lot and lawn areas within the private property drain to catch basins which connect to the storm drain line conveying Kabelac Creek. Kabelac Creek then continues as an open channel for approximately 500 feet before discharging to Sinclair Inlet. North of the private property is a parcel adjacent to Sinclair Inlet owned by Kitsap County, where a driveway leads to a County-owned maintenance area.

The SR 16 roadway at Crossing D, UNT to Ross Creek, is superelevated and sloping to the southwest within the project limits. A barrier divides the eastbound and westbound lanes. It is presumed that flows from the westbound lanes collect along the north side of the barrier and flow through the openings at the barrier joints as there are no drainage structures along the barrier. There is a high point in the road approximately 670 feet west of the crossing. Roadway runoff west of the crossing is collected in a ditch running along the southern side of the road and discharges to UNT to Ross Creek. Roadway runoff directly over the crossing flows east along the curb on the south side of SR 16, discharging to a flow path that eventually leads to Ross Creek in TDA D-3. TDA D-3 encompasses the eastern portion of the project draining to Ross Creek, including the SR 16 roadway east of the UNT to Ross Creek crossing. Land use in the project vicinity is mainly forested with a few commercial and industrial parcels to the southwest. The posted speed limit at the project site is 60 mph based on the Washington State Highway Log.

SR 166 at Crossing E, Olney Creek, has a low point approximately 180 feet west of the existing crossing. SR 166 is crowned with the crest located generally between the two eastbound lanes. Flows draining off either side of the road are collected in enclosed drainage systems that outfall to ditches sloping down the steep embankment to Olney Creek. At the crossing itself there is a steep drop off down to the creek on both sides of the road. At the low point in the road, an existing catch basin on the south side of SR 166 has been prone to clogging causing runoff to pond and overtop the curb. The flows have eroded the curb and embankment at this location, and maintenance crews have temporarily repaired the eroded area with an asphalt berm and riprap lining at the top of the embankment slope. Olney Creek itself flows from south to north and most of the surrounding land use is commercial businesses with the exception of a park on the northwestern side of the crossing. The posted speed limit at the project site is 35 mph based on the Washington State Highway Log.

Ten TDAs were delineated across all five project sites. Further discussion on the TDAs is included in **Section 2.3**. Detailed maps of the TDA boundaries and downstream flow paths are included in **Appendix A-2**.

## **2.2 EXISTING HYDRAULIC FEATURES**

Based on available information, the notable hydraulic features for each crossing are discussed in the following sections.

### **2.2.1 Existing Treatment and Flow Control BMPs**

There are no known existing treatment or flow control stormwater facilities within the project limits.

### **2.2.2 Existing Stream Crossings**

Gorst Creek (Crossing A), the UNT to Gorst Creek (Crossing B), Kabelac Creek (Crossing C), UNT to Ross Creek (Crossing D), and Olney Creek (Crossing E) are the major waterbodies within each crossing and overall project limits. All creeks are considered fish-bearing and are part of the Kitsap Watershed (WRIA 15) and eventually discharge to Sinclair Inlet.

Additional stream crossings other than the project crossings are described below:

- At Crossing A, Gorst Creek, a non-fish-bearing stream crosses SR 3 from southeast to northwest approximately 760 feet west of the Gorst Creek crossing and flows along the bottom of the slope within the forested right-of-way (ROW) area southwest of the crossing before discharging to Gorst Creek approximately 100 feet beyond the WSDOT ROW line.
- Located west of the Crossing C, Kabelac Creek site, a fish passage barrier was newly identified on SR 16 along UNT to Sinclair Inlet in the Washington Department of Fish and Wildlife fish passage inventory. This creek is conveyed under SR 16 and continues through an enclosed conveyance system under a commercial property before discharging to Sinclair Inlet. This pipe system receives flows from the western side of the Crossing C project limits. Based on email correspondence with the WSDOT Olympic Region Fish Passage Technical Lead, this barrier is not currently on the WSDOT injunction list and is not included in the Gorst project bundle.
- In Crossing D, UNT to Ross Creek, the northwestern end of the project drains to UNT to Sinclair Inlet which crosses SR 16 approximately 1,360 feet west of the UNT to Ross Creek crossing. Ross Creek crosses SR 16 approximately 1,300 feet east of the UNT to Ross Creek crossing.

The following 303(d) listings and TMDLs are identified for the receiving water bodies of each project site based on Ecology's Water Quality Assessment database. None of the dissolved oxygen listings currently have a TMDL. None of the water bodies within the project limits have a 303(d) listing or TMDL for Phosphorus.

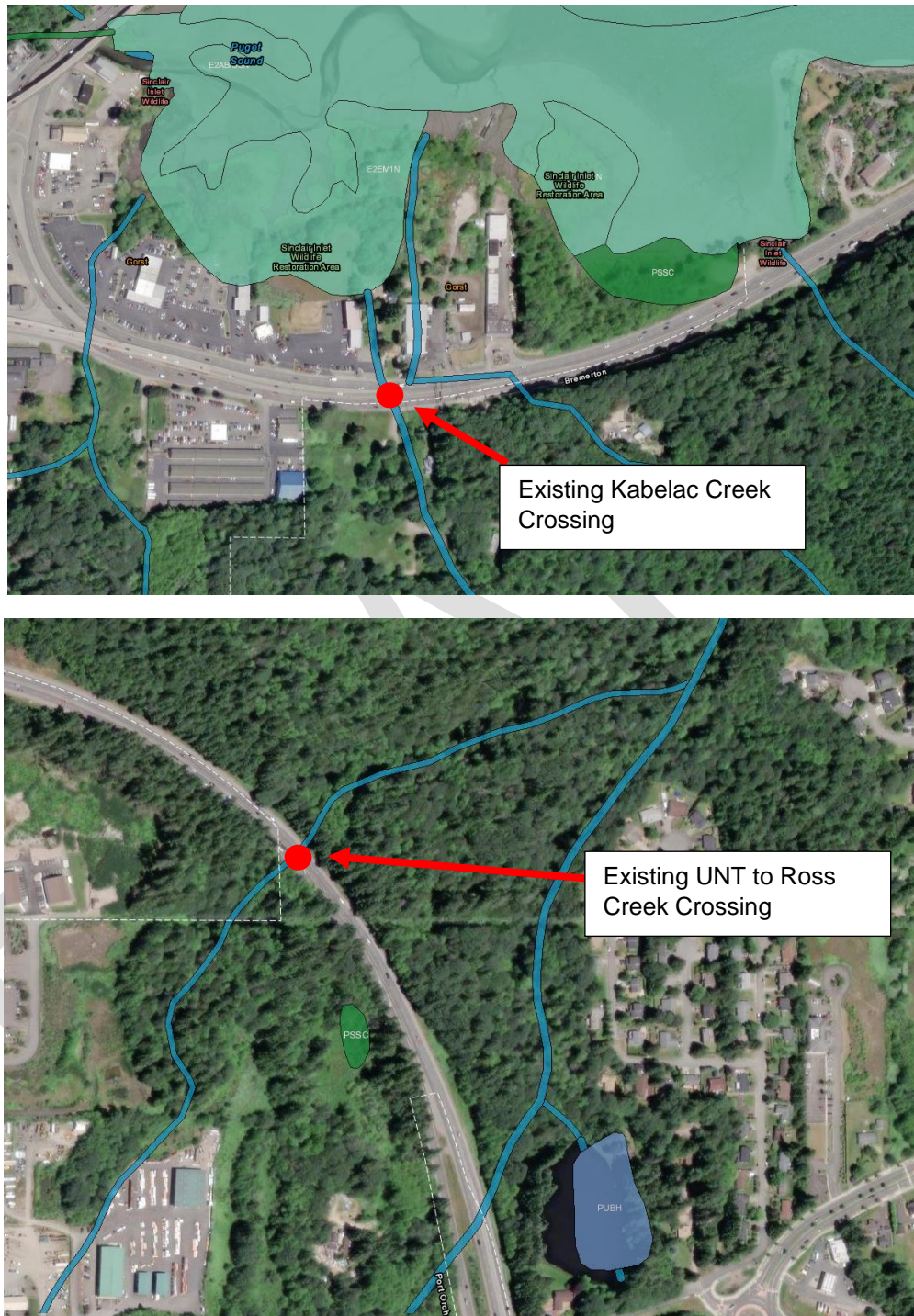
- Crossing A: Gorst Creek has a 303(d) listing for dissolved oxygen immediately downstream of the crossing.
- Crossing B: There are no 303(d) listings for UNT to Gorst Creek. Gorst Creek has 303(d) listings for dissolved oxygen and bacteria (fecal coliform) at the confluence with UNT to Gorst Creek approximately 400 feet downstream of the project site. A pollution control program is currently implemented by Kitsap County for the bacteria listing.
- Crossing C: Sinclair Inlet has 303(d) listings for dissolved oxygen and bacteria (fecal coliform) in the vicinity of the project site.
- Crossing D: There are no 303(d) listings for UNT to Ross Creek. Ross Creek has a 303(d) listing for dissolved oxygen near the southeast portion of the project site. Sinclair Inlet has 303(d) listings for dissolved oxygen and mercury near the outlet of UNT to Sinclair Inlet which crosses SR 16 near the western portion of the project site.
- Crossing E: Olney Creek has a TMDL for bacteria (fecal coliform) under the Sinclair & Dyes Inlets Tributaries Bacteria TMDL. Sinclair Inlet has a 303(d) listing for dissolved oxygen at the outlet of Olney Creek approximately 0.9 miles downstream of the project site.

### 2.2.3 Existing Critical Areas

According to the National Wetlands Inventory, areas along the Sinclair Inlet coastline at Crossing C, Kabelac Creek, include estuarine and marine wetland habitat as well as freshwater forested/shrub wetland habitat on the east end of the project. Crossing D, UNT to Ross Creek, has one area of freshwater forested/shrub wetland located approximately 500 feet south of the crossing and west of SR16. No other wetlands are identified in the National Wetlands Inventory within 0.25 mile downstream of the three other crossings. See **Figure 2-1** for wetlands in the vicinity of Crossings C and D.

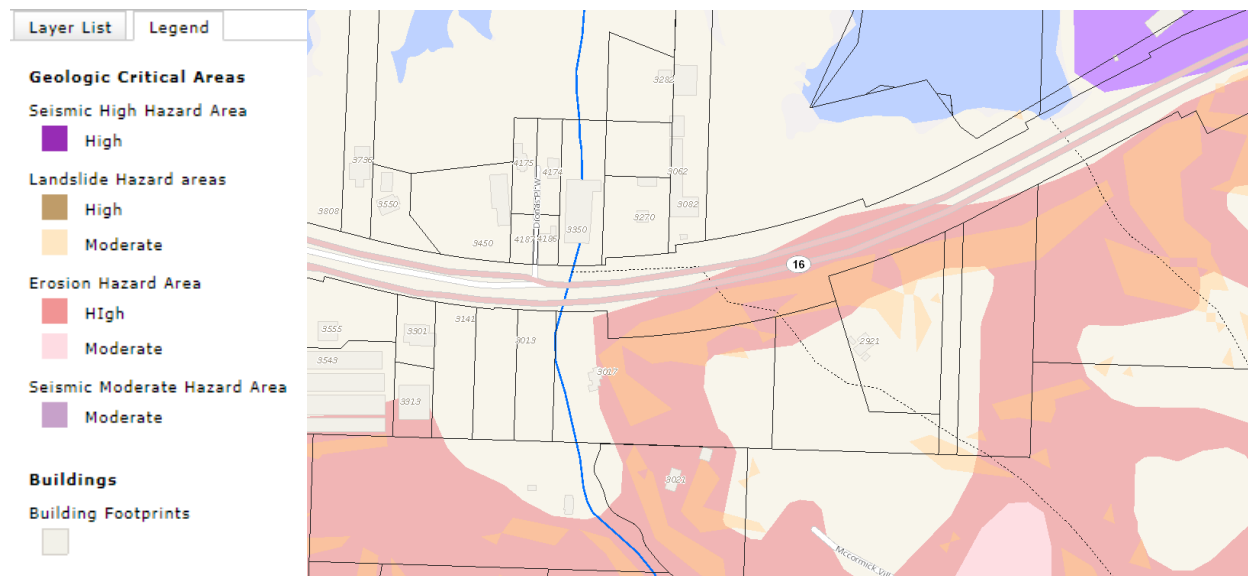
Preliminary wetland reconnaissance has been conducted for this project. Based on initial findings, Category I to III wetlands were identified near Crossing C and Category II to III wetlands were identified

near Crossing D based on Ecology rating. All field-identified wetlands throughout the five project sites are described in the Wetland and Stream Assessment Report included in the RFP documents.



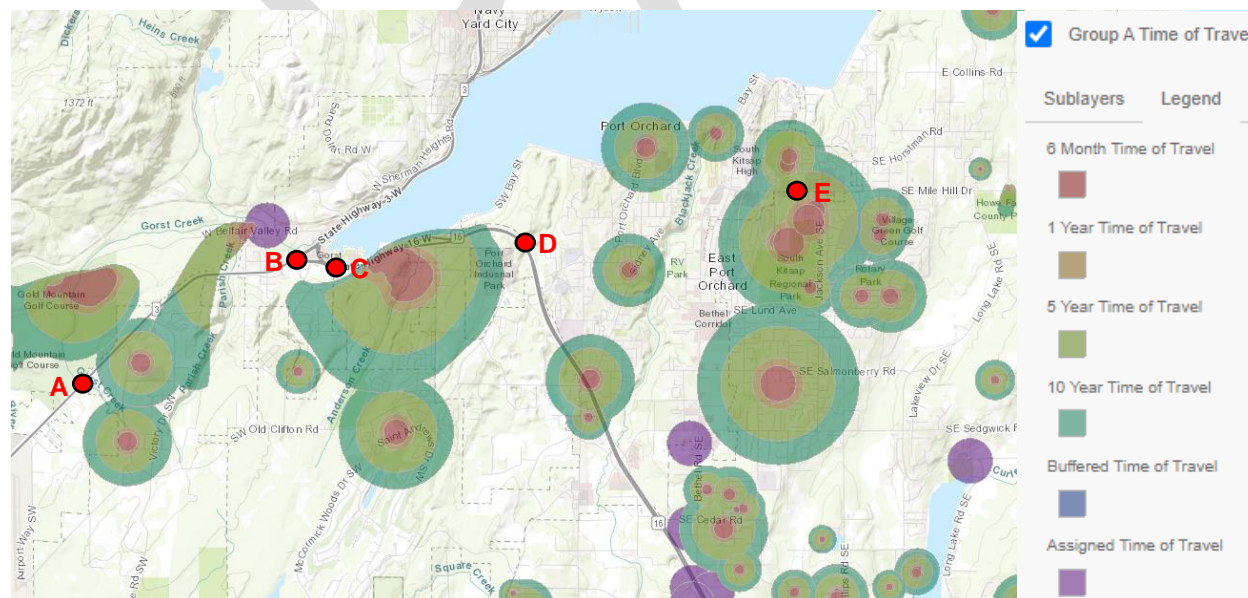
**FIGURE 2-1. NATIONAL WETLANDS INVENTORY WETLANDS IN VICINITY OF CROSSING C, KABELAC CREEK (TOP), AND CROSSING D, UNT TO ROSS CREEK (BOTTOM)**

Based on Kitsap County critical area mapping, the stream corridors flowing through steep ravines at Crossings A, D, and E are located within high erosion hazard areas. There are no erosion hazard areas within the Crossing B project limits. At Crossing C, the steep slope on the southern side of SR 16 is located in a high erosion hazard area (see **Figure 2-2**).



**FIGURE 2-2: EROSION HAZARD AREAS NEAR CROSSING C**

Based on Ecology's Source Water Assessment Program mapping data, there are wellheads in the vicinity of some of the crossings, but not within the project limits (see **Figure 2-3**). Crossing E, Olney Creek, is located within the 5-year travel time of a few community water system wells operated by the West Sound Utility District #1. In addition, Crossing B, UNT to Gorst Creek, and Crossing C, Kabelac Creek, are located within Category I aquifer recharge areas based on Kitsap County mapping.



**FIGURE 2-3. WELLHEADS IN THE VICINITY OF PROJECT SITES**

## 2.2.4 Existing Conveyance

The existing conveyance for each crossing is described in the following sections. The Design Builder shall inspect and report the condition of all existing conveyance systems in accordance with RFP Technical Requirement Chapter 2.14.

### 2.2.4.1 Existing Cross Culverts

**Table 2-1** summarizes the existing cross culverts within the project limits by crossing and provides additional information about the type, size, and location of the existing culvert and a description of the direction of flow.

**TABLE 2-1. EXISTING CROSS CULVERTS**

Crossing	Type/Size	Location	Description
<b>Crossing A Gorst Creek</b>	18-inch CPEP	1,055 feet west of project crossing	Culverts convey flow from southeast to northwest towards Gorst Creek
	18-inch CONC	760 feet west of project crossing	
	Unknown	160 feet west of project crossing	
	4-ft by 4-ft Box Culvert	Project crossing	Culvert conveys Gorst Creek from southeast to northwest
<b>Crossing B UNT to Gorst Creek</b>	36-inch CONC and 36-inch CMP	Project crossing	Culvert consists of two pipe sections connected to a manhole and conveys UNT to Gorst Creek south to north
<b>Crossing C Kabelac Creek</b>	30-inch CONC	Project Crossing	Culvert conveys Kabelac Creek from south to north towards Sinclair Inlet
<b>Crossing D UNT to Ross Creek</b>	18-inch ICP	Approx. 1,360 feet west of project crossing	Culvert conveys flows from south to north to a tributary to Sinclair Inlet
	18-inch ICP	Approx. 155 feet west of project crossing	Culvert conveys flows from west to east toward UNT to Ross Creek
	48-inch CMP	Project crossing	Culvert conveys UNT to Ross Creek from southwest to northeast
	18-inch ICP	Approx. 530 feet east of project crossing	Culvert conveys flows from east to west towards an existing wetland
	30-inch CP	Approx. 1,300 feet east of project crossing	Culvert conveys Ross Creek from south to north
<b>Crossing E Olney Creek</b>	4-ft by 4-ft Box Culvert	Project Crossing	Culvert conveys Olney Creek from south to north

Notes: CMP = corrugated metal pipe  
CPEP = corrugated polyethylene pipe

CONC = concrete pipe  
ft = feet/foot

#### 2.2.4.2 Existing Ditches

Crossing A, Gorst Creek, has roadside ditches within the project limits, which eventually flow into Gorst Creek. On the southeastern side of the crossing, the roadside ditch conveys flow north to a catch basin and then through a culvert across SR 6 where it flows down the steep embankment to the downstream side of the Gorst Creek crossing.

Crossing B, UNT to Gorst Creek, has a line of roadside ditches on the southeast side of SR 3 prior to discharging to the creek. These ditches are connected by a series of driveway culverts and the system as a whole conveys flow northeast to the inlet of the existing culvert crossing. The other ditch within the project limits is to the west of W Sam Christopherson Ave and conveys flow northwest away from the SR 3 and SR 16 intersection, eventually discharging to a tributary to Gorst Creek and then to Gorst Creek.

Crossing C, Kabelac Creek, has one main ditch run on the south side of SR 16. This series of ditches and culverts conveys the flow from west to east which eventually flows north across the road through a culvert east of the project limits to discharge to Sinclair Inlet. A ditch also runs along the east side of a private commercial property north of SR 16. Flows from the ditch enter enclosed pipe for approximately 140 feet, then continue north via ditch flow before discharging directly to Sinclair Inlet.

Crossing D, UNT to Ross Creek has ditches on both north and south sides of the road. Since the road is superelevated to the south, the ditches on the south generally convey roadway runoff and the ditches on the north convey offsite flows. The ditch northwest of the crossing discharges to UNT to Ross Creek while the ditches east of the crossing drain to the forested ROW areas and eventually to Ross Creek. At the south end of the project a ditch conveys flow southeast along the median grassy swale between the westbound and eastbound lanes of SR 16.

Crossing E, Olney Creek, has a ditch line on the southeast side of SR 166 which conveys flow to the west to Olney creek via a ditch and culvert run.

**Appendix A-2** shows the existing ditches within the project limits.

#### 2.2.4.3 Existing Enclosed Drainage Systems

Crossing A, Gorst Creek, does not have an enclosed drainage system within the project limits, other than the catch basin and storm pipe discharging flow from a ditch on the southeast of SR 3 to the northwest side of the road.

Crossing B, UNT to Gorst Creek, has an enclosed drainage system on both sides of SR 3 south of the crossing. On the southwestern side of SR 3, storm drains convey roadway runoff to a short ditch near the intersection. At the end of the ditch, another pipe conveys flow to the manhole connecting the two culvert segments of the UNT to Gorst Creek crossing. On the southeastern side of SR 3, a line of ditches and enclosed storm drains conveys road runoff and discharges it to the upstream side of the UNT to Gorst Creek crossing. Along the SR 16 spur road, storm drains convey roadway runoff to the east toward Sinclair Inlet.

Crossing C, Kabelac Creek, has an enclosed drainage system on the western end of the project on both the north and south sides of SR 16. The storm drains along the northern side of the road convey most of the roadway runoff west of the Kabelac Creek crossing. Within the project limits but outside WSDOT ROW, there is also an enclosed drainage system conveying Kabelac Creek under the private commercial property north of SR 16, as well as additional catch basins and storm drains collecting runoff from the parking lot and lawn areas of the private property to the storm drain line conveying Kabelac Creek.

Crossing D, UNT to Ross Creek, has a catch basin and storm pipe discharging ditch flows from the median to Gorst Creek at the southeast end of the project. There are no other enclosed drainage systems at Crossing D within the project limits.

Crossing E, Olney creek, has an enclosed drainage system along the south side of SR 166 west of the crossing and along the northern side of SR 166 both west and east of the crossing. All enclosed drainage systems within the project limits flow to Olney Creek. There are a number of offsite connections to the roadside drainage system from commercial properties upstream and downstream of the crossing.

**Appendix A-2** shows the existing enclosed drainage systems within the project limits.

#### 2.2.4.4 Existing Bridges

There are no existing bridges at the crossing or within the project limits.

#### 2.2.4.5 Existing Flood Plains

The Crossing B and Crossing E project sites are within Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHA). Crossing B, UNT to Gorst Creek, is within a Zone AE SFHA and a regulatory floodway (FEMA Map No. 53035C0368F). Crossing C, Kabelac Creek, is not within a FEMA SFHA, but it discharges into Sinclair Inlet which is in a Zone AE SFHA. Crossing E, Olney Creek, is in a Zone A SFHA (FEMA Map No. 53035C0390F). Crossing D, UNT to Ross Creek, is not within a FEMA SFHA but discharges to Ross Creek, which is in a Zone AE SFHA and a regulatory floodway. Crossing A is not within a FEMA flood area. FEMA maps for the five crossings are provided in **Appendix A-10**.

#### 2.2.4.6 Existing Subsurface Drainage

There are no known subsurface drainage systems within any of the crossing limits.

### 2.3 THRESHOLD DISCHARGE AREAS

TDAs for the project were delineated in accordance with HRM Section 4-2.5. After reviewing existing survey, site topography, and available GIS maps, and performing site reconnaissance, 10 separate TDAs (two of which are located in adjacent project sites and are part of the same TDA) are shown to exist within the project site limits across the five crossings. An existing TDA exhibit for each crossing site within the project is provided in **Appendix A-2**. A summary of the existing TDAs including the total TDA areas within the project limits and the downstream receiving waters is provided in **Table 2-2**.

**TABLE 2-2. SUMMARY OF TDAS**

Crossing / Crossing ID	Threshold Discharge Area	Area (acres)	Receiving Water
<b>Gorst Creek (Crossing A)</b>	A-1	18.845	Gorst Creek
<b>UNT to Gorst Creek (Crossing B)</b>	B-1	4.131	UNT to Gorst Creek
	B-2	1.046	UNT to Gorst Creek
	B-3 <sup>(1)</sup>	0.961	Sinclair Inlet
<b>Kabelac Creek (Crossing C)</b>	C-1 <sup>(1)</sup>	4.821	Sinclair Inlet; Kabelac Creek
	C-2	3.395	Sinclair Inlet
<b>UNT to Ross Creek (Crossing D)</b>	D-1	8.701	UNT to Sinclair Inlet
	D-2	7.358	UNT to Ross Creek
	D-3	13.449	Ross Creek
<b>Olney Creek (Crossing E)</b>	E-1	3.574	Olney Creek

Note:

<sup>(1)</sup> TDA B-3 and TDA C-1 are in the same TDA based on downstream discharge point.

At Crossing A, Gorst Creek, TDA A-1 includes the entirety of the project limits. The crossing is located near a sag in the road. Roadway runoff drains to roadside ditches that all discharge to Gorst Creek. ROW areas also generally drain toward the creek and flows converge within 0.25 miles downstream of the ROW line.

At Crossing B, UNT to Gorst Creek, TDA B-1 encompasses the southbound lanes of SR 3 north of the intersection of SR 3 and SR 16, all of SR 3 south of the intersection, and the entire section of W Sam Christopherson Ave within the project limits. TDA B-1 generally drains to UNT to Gorst Creek at various points along the crossing, with runoff from W Sam Christopherson Ave draining north to another tributary to Gorst Creek. Flows from both tributaries discharge to Gorst Creek and converge within 0.25 miles downstream of the ROW line. TDA B-2 includes the northbound lanes of SR 3 north of the intersection of SR 3 and SR 16, as well as the northern side of the SR 16 spur road. Flows from this TDA travel northeast and discharge to Gorst Creek near its outlet to Sinclair Inlet. TDA B-3 encompasses the south side of the SR 16 spur road where runoff is conveyed east through storm drains, eventually getting conveyed through a commercial property before discharging to Sinclair Inlet.

Crossing C, Kabelac Creek, is located at a high point in SR 16. TDA C-1 encompasses the western half of the project and the majority of the private property that Kabelac Creek flows through. A small section of SR 16 drains to Kabelac Creek, and most of the TDA drains west through storm drains to a point where flows leave WSDOT ROW and head north through a commercial property before discharging to Sinclair Inlet. TDA C-2 includes the eastern side of the project limits and discharges to Sinclair Inlet at various points via ditches and storm drain outfalls.

The downstream flow paths from TDA B-3 and TDA C-1 are conveyed through WSDOT storm drains and converge at a catch basin before leaving WSDOT ROW. As such, **TDA B-3 and TDA C-1 are in the same TDA**. From this point, the combined flows pass under a commercial property before discharging to Sinclair Inlet. This flow path also coincides with the UNT to Sinclair Inlet stream crossing described in **Section 2.2.2**.

At Crossing D, UNT to Ross Creek, the boundary between TDA D-1 and TDA D-2 marks a high point in the SR 16 roadway. TDA D-1 encompasses the northwestern portion of the project which drains northwest to another UNT to Sinclair Inlet. TDA D-2 generally drains southeast and includes the SR 16 roadway west of the crossing and the forested ROW areas on both the north and south sides of the roadway near the UNT to Ross Creek crossing, but excludes the roadway directly over the crossing which is part of TDA D-3. The SR 16 roadway directly over the crossing is conveyed eastward to a wetland area in TDA D-3 which eventually drains to Ross Creek. TDA D-3 also includes the SR 16 roadway and ROW areas east of the UNT to Ross Creek crossing, which drain eastward to Ross Creek.

At Crossing E, Olney Creek, TDA E-1 includes the entirety of the project limits. The crossing is located near a sag in the road. Roadway runoff drains primarily through storm drains toward Olney Creek. ROW areas also generally drain toward the creek and flows converge within 0.25 miles downstream of the ROW line.

## 2.4 SOILS

Based on Natural Resource Conservation Service (NRCS) soil data, the soils within the project limits of Crossing A are predominantly Alderwood gravelly sandy loam with a smaller percentage of Neilton gravelly loamy sand. Alderwood soils are classified as hydrologic soil group (HSG) C (per table 4B-1 in the HRM) which are soils that have low infiltration rates with a layer that impedes downward movement of water.

At Crossing B, the NRCS soils are predominantly Indianola loamy sand, which is classified as HSG A. HSG A soils have low runoff potential and high infiltration rates.

At Crossing C, the NRCS soils are partially Urban land-Alderwood complex, followed closely by Indianola-Kitsap complex and Kitsap silt loam. Alderwood and Kitsap soil series are both classified as HSG C.

At Crossing D, the NRCS soils are mostly Alderwood gravelly sandy loam followed by Dystric Xerorthents. Alderwood soil series is classified as HSG C.

At Crossing E, the NRCS soils are largely Indianola-Kitsap complex and Urban land-Alderwood complex. Indianola soil series is classified as HSG A while Kitsap and Alderwood soil series are in HSG C.

The NRCS soil maps are included in **Appendix A-10**.

### 2.4.1 Acidity and Resistivity

The Design Builder will provide acidity and resistivity testing in accordance with the WSDOT Hydraulics Manual.

### 2.4.2 Infiltration Rate and Groundwater

Soil investigations have been conducted within the project limits to determine the depth of groundwater and soil conditions.

Soil boring locations, groundwater data, and historical geotechnical data have been compiled in RFP Appendix G.

The Design Builder will be responsible for evaluating and installing the required number of piezometers at proposed stormwater facility locations per the HRM. At locations where stormwater facilities are proposed in high groundwater or perched groundwater locations, appropriate liners must be used per WSDOT HRM requirements. Refer to additional requirements in RFP Section 2.14.

## 2.4.3 Other Considerations

This section describes any circumstances or materials that may have been identified in previous investigations that have the possibility of impacting the project.

### 2.4.3.1 Unsuitable Material

The Geotechnical Baseline Report and Geotechnical Design Report are included in RFP Appendix G.

### 2.4.3.2 Hazardous Material

Refer to geotechnical report in RFP Appendix G for updated information. According to preliminary information provided by the geotechnical engineer as well as the Toxic Cleanup Program website from Ecology, there are multiple sites identified as confirmed or suspected contaminant sites within the project limits. Crossing A has the Auto Wrecking landfill to the northeast of the project site which is classified as a Superfund Site. Crossing B is located north of the Washington Cedar & Supply Co. contamination site. Crossing C is located east of the Port Orchard Sand & Gravel Gorst Plant, and the Sadtler Property site is located near the outfall of Kabelac Creek to Sinclair Inlet. Lastly Crossing E is located just east of the Choice Texaco & Mini Mart site. All these sites are indicated as having "Cleanup started."

## 2.5 EXISTING STORMWATER DISCHARGE POINT INVENTORY

Existing stormwater discharge point data provided by WSDOT were reviewed along with discharge points shown on the WSDOT Community Planning Portal. The data provided by WSDOT contained two additional discharge points that were not included on the WSDOT Community Planning Portal, one incoming discharge southwest of Crossing A, Gorst Creek, that had a "retired" status, and one land surface discharge east of Crossing E, Olney Creek. The stormwater discharge point list provided by WSDOT is included in **Appendix A-10** for reference. The Design Builder will provide the WSDOT Hydraulic discharge point inventory spreadsheet (HQ HDPI form).

The design team is not aware of any illicit connections or discharges to the state drainage system within the project limits.

## 2.6 EXISTING UTILITIES

Known existing utilities and related information are available for reference in RFP Appendix U. The Design Builder is responsible for identifying and addressing utility crossings and conflicts per RFP Section 2.10.

### 3 DESIGN STANDARDS

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The Design Builder will perform stormwater design in accordance with the guidance and manuals listed below and in the RFP Section 2.14.

- WSDOT HRM (M31-16.05), April 2019
- WSDOT Hydraulics Manual (M23-03.09), May 2023
- WSDOT Design Manual (M22-01.21), September 2022
- WSDOT Utilities Manual (M22-87.10), February 2019
- WSDOT Maintenance Manual (M51-01.13), May 2023
- WSDOT Roadside Manual (M25-30.05), May 2022
- WSDOT Standard Plans (Current Version)
- WSDOT Standard Specifications for Roads, Bridges, and Municipal Construction (Current Version)

#### 3.1 DESIGN FREQUENCY

The Design Builder will use the appropriate design storm frequency and hydrology methods to design drainage features and stormwater facilities for this project as recommended in the WSDOT Hydraulics Manual Table 1-2.

#### 3.2 STORMWATER MANAGEMENT GUIDELINES

The Design Builder will provide stormwater management in accordance with Chapter 3 of the WSDOT HRM. Refer to the HRM Section 3-2 for project minimum requirements descriptions.

Based on the conceptual plan project improvements, the minimum requirements that apply at the project level are:

- Minimum Requirements 1 to 4 and 7 to 9 apply to the planning and design of the stormwater management facilities and best management practices for this project, since more than 5,000 square feet of new impervious surfaces will be added to the project.
- Minimum Requirements 1 to 4 apply to the new and replaced impervious surfaces and land disturbed, since more than 7,000 square feet of land is disturbed and the project adds more than 2,000 square feet of new and replaced impervious surfaces.
- Minimum Requirement 5 applies to the PGIS and the converted pollution generating pervious surfaces, since more than 5,000 square feet of new PGIS will be added to the project. Enhanced treatment will be required for all runoff treatment BMPs because all TDAs either do not discharge to a Basic Treatment water body or have average daily traffic greater than 15,000.
- Minimum Requirements 6 to 9 apply to the new impervious surfaces and converted pervious surfaces on the project, since more than 5,000 square feet of new impervious surfaces will be added to the project.

Minimum requirements are evaluated for each TDA within each crossing based on the conceptual roadway design. A summary of minimum requirements triggered in each TDA is provided in **Table 3-2** at

the end of this section. The Design Builder will perform a new evaluation of minimum requirements based on the final roadway design.

See **Section 3.3** and **Section 3.4** for additional requirements for stormwater runoff treatment.

### 3.3 STORMWATER RETROFIT ANALYSIS

The Design Builder will perform a new stormwater retrofit analysis based on the final roadway design, and stormwater retrofit requirements shall be assessed for each site.

#### 3.3.1 Project-Triggered Stormwater Retrofits Statewide

The proposed roadway improvements do not add 50 percent or more to the existing impervious surfaces or PGIS within the project limits and therefore the project-triggered stormwater retrofit does not apply. The Design Builder will re-evaluate the project-triggered stormwater retrofit requirement based on their final design.

#### 3.3.2 Project-Triggered Stormwater Retrofits within the Puget Sound Basin

All five crossing sites eventually discharge to the Puget Sound. Crossings B, C, and E exceed 5,000 square feet of new impervious thresholds within one or more of their TDAs and therefore require Puget Sound retrofit evaluation. Per Section 3-4 of the WSDOT HRM, a high-priority retrofit location requires retrofits to be provided to the maximum extent feasible to an amount equal or greater than 20 percent of the cost spent to meet the treatment and flow control minimum requirements for the new added pavement. **Table 3-1** summarizes the retrofit priority level for each crossing. The Design Builder will ensure retrofit is provided in accordance with HRM Section 3-4.3.3 Project Triggered Retrofits within the Puget Sound Basin.

**TABLE 3-1: STORMWATER RETROFIT PRIORITY PER CROSSING**

Crossing ID	Stormwater Retrofit Priority
A	Low
B	High
C	High
D	High
E	Low

#### 3.3.3 Stormwater Retrofit for Fish Barrier Projects

A Conceptual Stormwater Retrofit for Fish Barrier Projects treatment assessment has been prepared and the checklists are included in the RFP Appendix H. The Stormwater Retrofit for Fish Barrier Projects is required to be incorporated in the best management practice design for treatment in addition to WSDOT HRM minimum requirement, Puget Sound Retrofit requirement, and the ESA required stormwater treatments, where feasible.

Based on the current roadway design, there is potential to provide stormwater retrofit for fish barrier projects at Crossings A and D.

## 3.4 OTHER REQUIREMENTS

This section documents other requirements needed to be considered in the design of best management practices, in addition to meeting the requirements in the HRM as discussed in **Sections 3.2 and 3.3**.

As discussed in **Section 2.2.3**, there are no wellheads within the project limits, but the Crossing E, Olney Creek, project site is located within the 5-year travel time of a few community water system wells operated by the West Sound Utility District #1. Crossings B, UNT to Gorst Creek, and Crossing C, Kabelac Creek, are located within Kitsap County Category I critical aquifer recharge areas. The Design Builder shall follow the requirements in HRM Section 2-4.1.3 and use appropriate setbacks.

As discussed in **Section 2.2.4.5**, Crossing B is located within a FEMA Zone AE SFHA and regulatory floodway, and Crossing E is located within a Zone A SFHA. It is unlikely that stormwater BMPs will be proposed within the 100-year floodplain at either crossing as the floodplain is fairly confined to the channel at Crossing B and limited to the channel and steep stream bank areas at Crossing E.

Refer to RFP Technical Requirement Chapter 2.14 *Stormwater* for coordination with the City of Port Orchard for Crossing E drainage conveyance and other maintenance requirements.

### 3.4.1 Endangered Species Act Consultation

The project will need to follow Endangered Species Act (ESA) consultation due to threatened fish species residing in the downstream water bodies of the project.

As per current guidance, to qualify for the programmatic ESA consultation, crossings that exceed 500 square feet of new PGIS require runoff treatment. For sites that add between 500 square feet and 2 acres of new PGIS, the new PGIS plus the replaced PGIS require runoff treatment. For sites with 2 to 5 acres of new PGIS, the new PGIS plus the replaced PGIS plus the existing PGIS require runoff treatment. For sites that add more than 5 acres of PGIS area, individual ESA consultation is recommended.

Based on proposed roadway improvements, all five crossings exceed the 500 square feet threshold. Therefore all new and replaced PGIS require runoff treatment per the programmatic ESA consultation guidance. Further environmental consultation and coordination with regulatory agencies on the project is required to determine the ESA stormwater requirements. Refer to RFP Technical Requirement Chapter 2.08 and Chapter 2.14 for additional information and requirements.

For the purpose of this report, the runoff treatment requirements that apply to the project based on Programmatic ESA requirements are summarized in **Table 3-2**.

### 3.4.2 Stormwater Requirements Summary

The flow control and runoff treatment requirements triggered for each crossing due to HRM minimum requirements, ESA programmatic consultation, and Stormwater Retrofit for Fish Barrier Projects are summarized in **Table 3-2**.

**TABLE 3-2. SUMMARY OF RUNOFF TREATMENT AND FLOW CONTROL REQUIREMENTS TRIGGERED FOR EACH CROSSING**

Roadway	Crossing Reference	Water Crossing	Mile Post	TDA	HRM Minimum Requirements Triggered for Runoff Treatment-MR#5?	HRM Minimum Requirements Triggered for Flow Control-MR#6?	Endangered Species Act Triggered for Runoff Treatment? <sup>(1)</sup>	Additional Opportunities for Stormwater Retrofit for Fish Barrier Projects Treatment?
SR 3	A	Gorst Creek	32.10	A-1	No	No	Yes	Yes
SR 3	B	UNT to Gorst Creek	34.27	B-1	Yes	Yes	Yes	No
				B-2	No	No	Yes	No
				B-3 <sup>(2)</sup>	Yes	No <sup>(3)</sup>	Yes	No
SR 16	C	Kabelac Creek	28.60	C-1 <sup>(2)</sup>	Yes	No <sup>(3)</sup>	Yes	No
				C-2	No	No <sup>(3)</sup>	Yes	No
SR 16	D	Ross Creek	27.10	D-1	No	No	Yes	No
				D-2	No	No	Yes	No
				D-3	No	No	Yes	Yes
SR 166	E	Olney Creek	4.52	E-1	No	No	Yes	No

Notes:

<sup>(1)</sup> Programmatic ESA requires treatment of new plus replaced PGIS area if new PGIS is greater than 500 square feet.

<sup>(2)</sup> TDA B-3 and TDA C-1 are in the same TDA. Stormwater requirements are evaluated based on TDA B-3 + TDA C-1 total new impervious, new PGIS, and replaced PGIS areas. TDA B-3 and a portion of TDA C-1 share a common discharge point.

<sup>(3)</sup> TDA B-3, TDA C-1, and TDA C-2 have potential direct discharges via pipe outfall or constructed ditch to Sinclair Inlet in the Puget Sound, a flow control-exempt waterbody. Following discussions with WSDOT Olympic Region Hydraulics, flow control exemption is assumed for TDA B-3 and portions of TDA C-1 and TDA C-2 based on direct discharge to Puget Sound (see Section 3.6 for additional discussion).

sf = square feet

### 3.5 HYDRAULICS MANUAL DEVIATIONS

The Design Builder will update this section based on the final design.

### 3.6 HIGHWAY RUNOFF MANUAL DEVIATIONS

It is likely that deviations to minimum requirement #4 may be required due to shifting of TDA boundaries and resulting TDA area transfers anticipated at Crossing B, based on the proposed roadway layout and footprint. TDA boundaries may also shift at Crossing C depending on the proposed creek alignment downstream of the crossing, which may cause TDA area transfers that require a deviation to minimum requirement #4. The Design Builder will evaluate the need for these deviations and any other applicable deviations based on the final design and follow the deviation request process in the HRM.

There is potential for flow control exemption at Crossings B and C based on direct discharges to Sinclair Inlet. WSDOT Olympic Region Hydraulics has agreed to pursue flow control exemption at these project sites through an HRM deviation request for approval by the Demonstrative Approach Team. WSDOT has proposed that the flow control exemption shall be evaluated based on areas draining to a common discharge point and whether the discharge point is located at or below mean higher high water elevation. The flow control exemption could potentially be applied to portions of TDA C-1 and TDA C-2 that do not drain to Kabelac Creek and instead discharge through enclosed storm drains or constructed ditch directly to Sinclair Inlet, as well as for TDA B-3 in Crossing B as it is in the same TDA as TDA C-1 and shares the same discharge point to Sinclair Inlet.

The deviation request memo development and review are in progress for the flow control exemption. The Design Builder will update this section based on the final design and make any necessary adjustments to the deviation following the deviation request process in the HRM.

### 3.7 PIPE ALTERNATIVES

Portions of the project may be located in areas subject to saltwater exposure, which could impact pipe material selection. Due to the existing topography, there may also be the need to convey flows down steep slopes, which could require abrasion-resistant pipe materials.

The Design Builder will update this section in accordance with Chapter 8 of the Hydraulics Manual based on the final design and the applicable RFP chapters.

### 3.8 DOWNSTREAM ANALYSIS

The downstream analysis documentation will be provided by the Design Builder.

### 3.9 NEW STORMWATER DISCHARGE POINTS

New stormwater discharge points will be identified and designed by the Design Builder. Refer to **Section 2.5**.

## 4 DEVELOPED SITE CONDITIONS

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This report does not provide a conceptual stormwater design. This section will be completed by the Design Builder.

DRAFT

## 5 HYDROLOGIC AND HYDRAULIC DESIGN

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This report does not provide a conceptual stormwater design. This section will be completed by the Design Builder.

DRAFT

## 6 PERMITS AND ASSOCIATED REPORTS

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This section will be completed by the Design Builder.

DRAFT

## 7 INSPECTION AND MAINTENANCE SUMMARY

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This section will be completed by the Design Builder.

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## APPENDICES

The following appendices are included in this report:

Appendix A-2 Threshold Discharge Area Maps

Appendix A-10 Specialty Design Reports (*Includes FEMA maps, NRCS soil maps, and WSDOT stormwater discharge points list*)

The Design Builder shall include all the appendices necessary as per the WSDOT Template:

Appendix A-1 Stormwater Design Documentation Spreadsheet

Appendix A-2 Threshold Discharge Area Maps, Drainage Basin Maps, and Area Calculations

Appendix A-3 Calculations and Program Output

Appendix A-4 Drainage Plan Sheets, Structure Notes, and Details

Appendix A-5 Drainage Profile Sheets

Appendix A-6 Roadway Cross Sections and Profiles

Appendix A-7 Miscellaneous Contract Plan Sheets

Appendix A-8 Traffic Analysis Data

Appendix A-9 Environmental Documentation

Appendix A-10 Specialty Design Reports

Appendix A-11 Deviations to the Hydraulics Manual or HRM

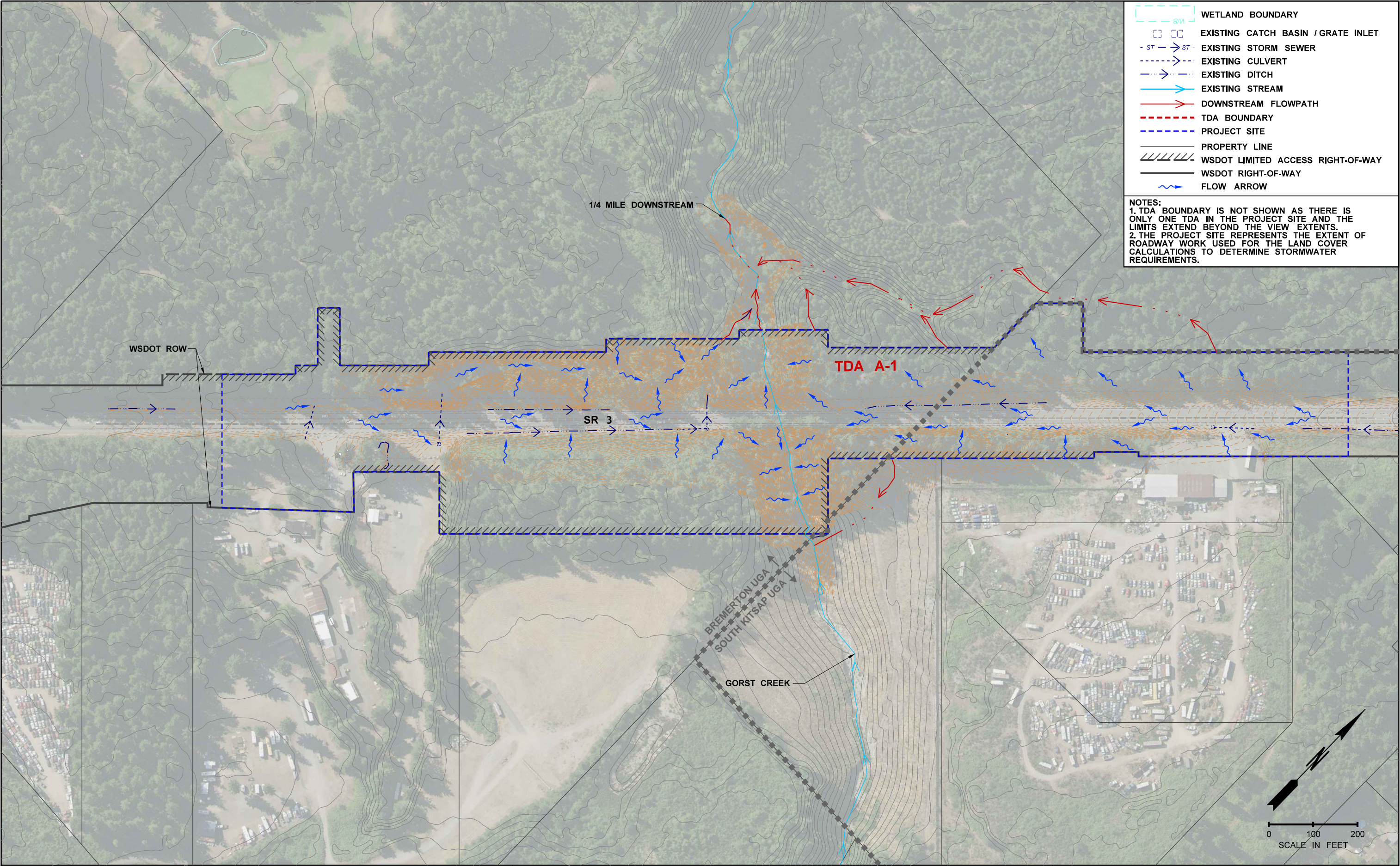
Appendix A-12 Underground Injection Control Registration Forms

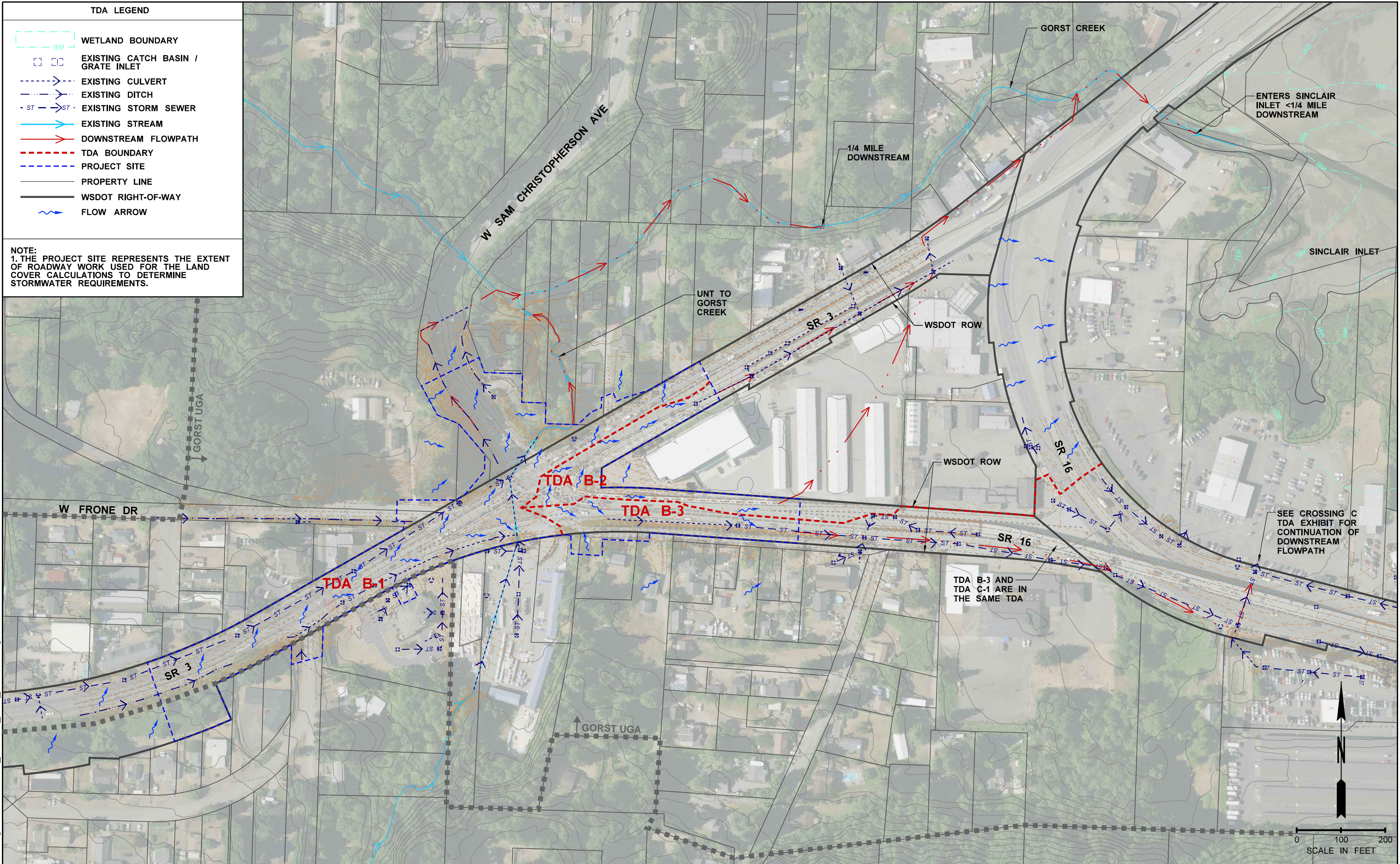
Appendix A-13 Supplements and Revisions

## APPENDIX A-2 THRESHOLD DISCHARGE AREA MAPS

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Washington State  
Department of Transportation

OSBORN CONSULTING  
INCORPORATED

SR 3/ SR 16/ SR 166, GORST VICINITY - REMOVE FISH BARRIERS

CROSSING B - SR 3 MP 34.27 UNT TO GORST CREEK

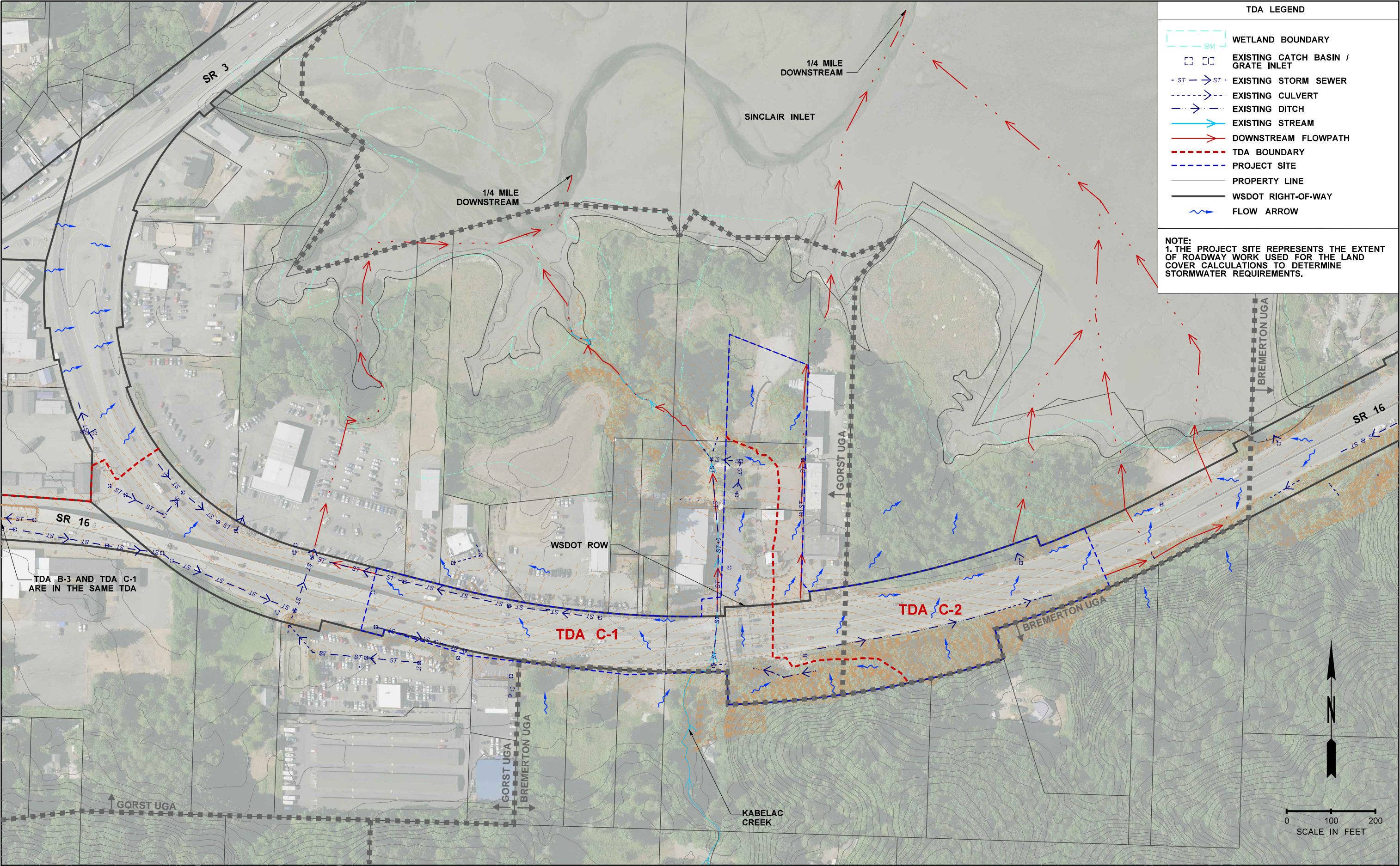
TDA EXHIBIT

PLOTTED BY: sakshig

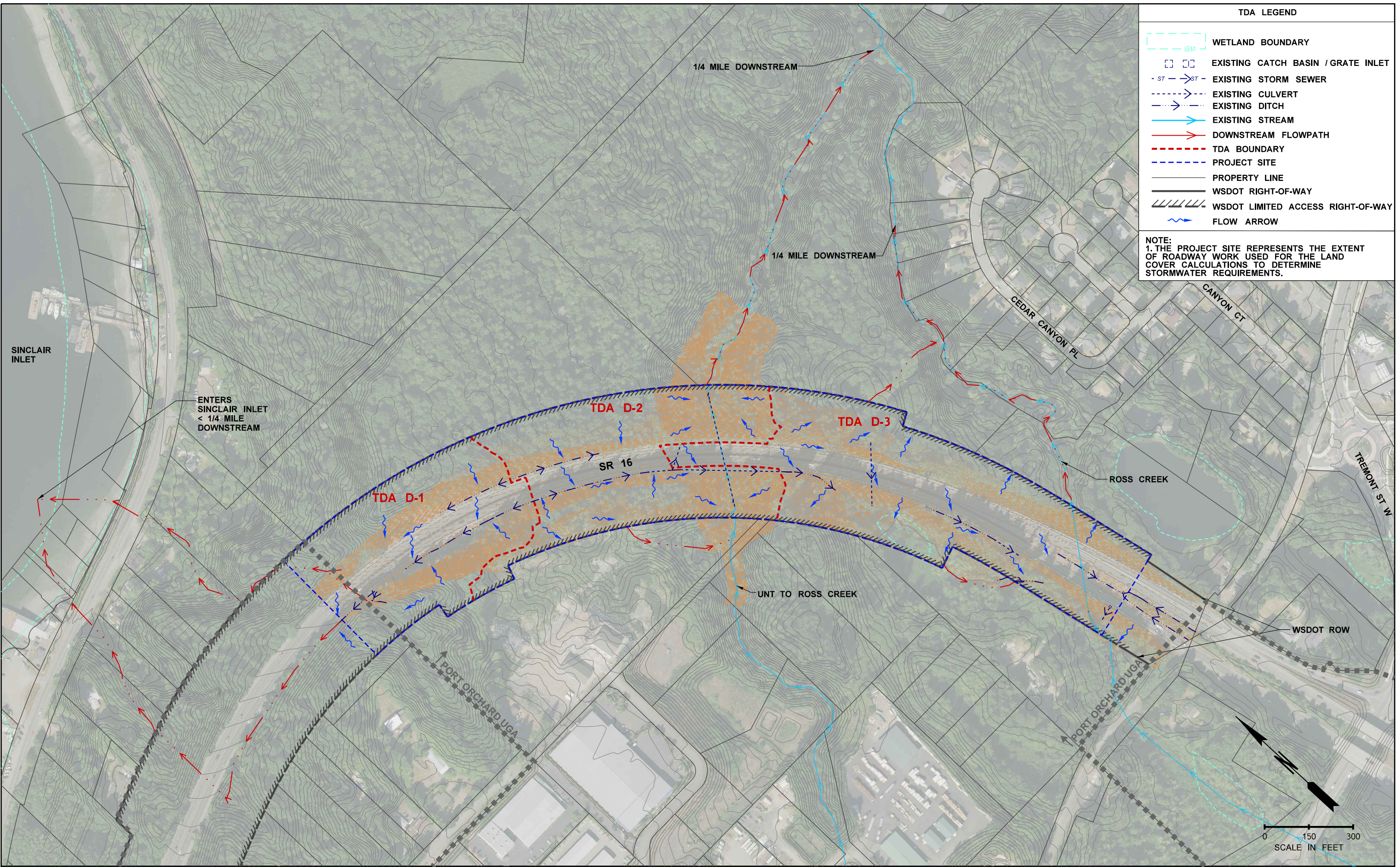
DATE: 9/6/2023

TIME: 11:30:18 AM

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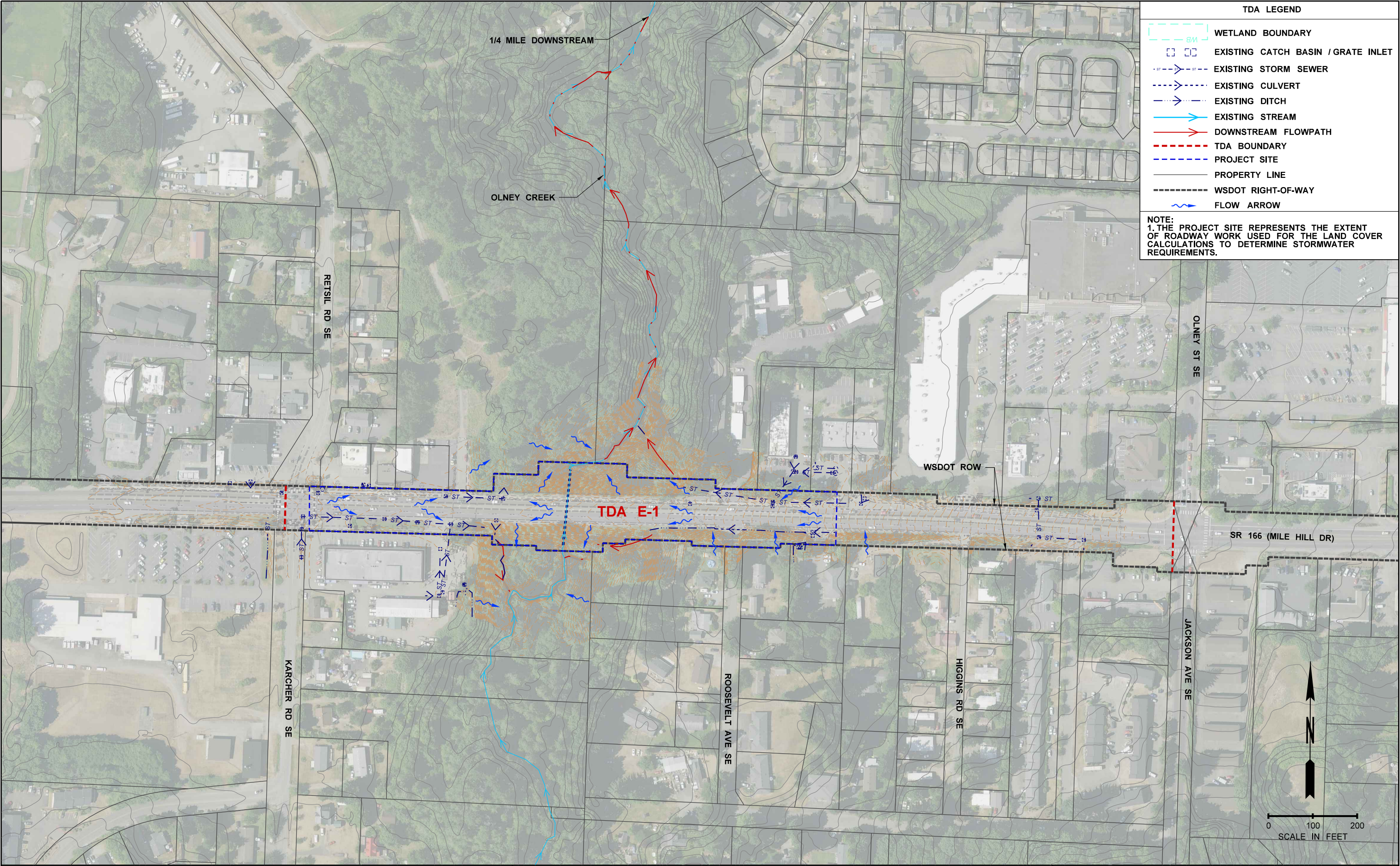
Washington State  
Department of Transportation

**OSBORN CONSULTING**  
INCORPORATED

SR 3/ SR 16/ SR 166, GORST VICINITY - REMOVE FISH BARRIERS  
CROSSING D - SR 16 MP 27.10 UNT TO ROSS CREEK  
TDA EXHIBIT

PLOTTED BY: sakshig  
DATE: 9/6/2023 TIME: 11:31:16 AM

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**TDA LEGEND**

- WETLAND BOUNDARY
- EXISTING CATCH BASIN / GRATE INLET
- EXISTING STORM SEWER
- EXISTING CULVERT
- EXISTING DITCH
- EXISTING STREAM
- DOWNSTREAM FLOWPATH
- TDA BOUNDARY
- PROJECT SITE
- PROPERTY LINE
- WSDOT RIGHT-OF-WAY
- FLOW ARROW

**NOTE:**  
1. THE PROJECT SITE REPRESENTS THE EXTENT OF ROADWAY WORK USED FOR THE LAND COVER CALCULATIONS TO DETERMINE STORMWATER REQUIREMENTS.

## **APPENDIX A-10 SPECIALTY DESIGN REPORTS**

(Includes FEMA Maps, NRCS Soil Maps, and WSDOT stormwater discharge points list)

DRAFT

# National Flood Hazard Layer FIRMette



122°45'2"W 47°30'44"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

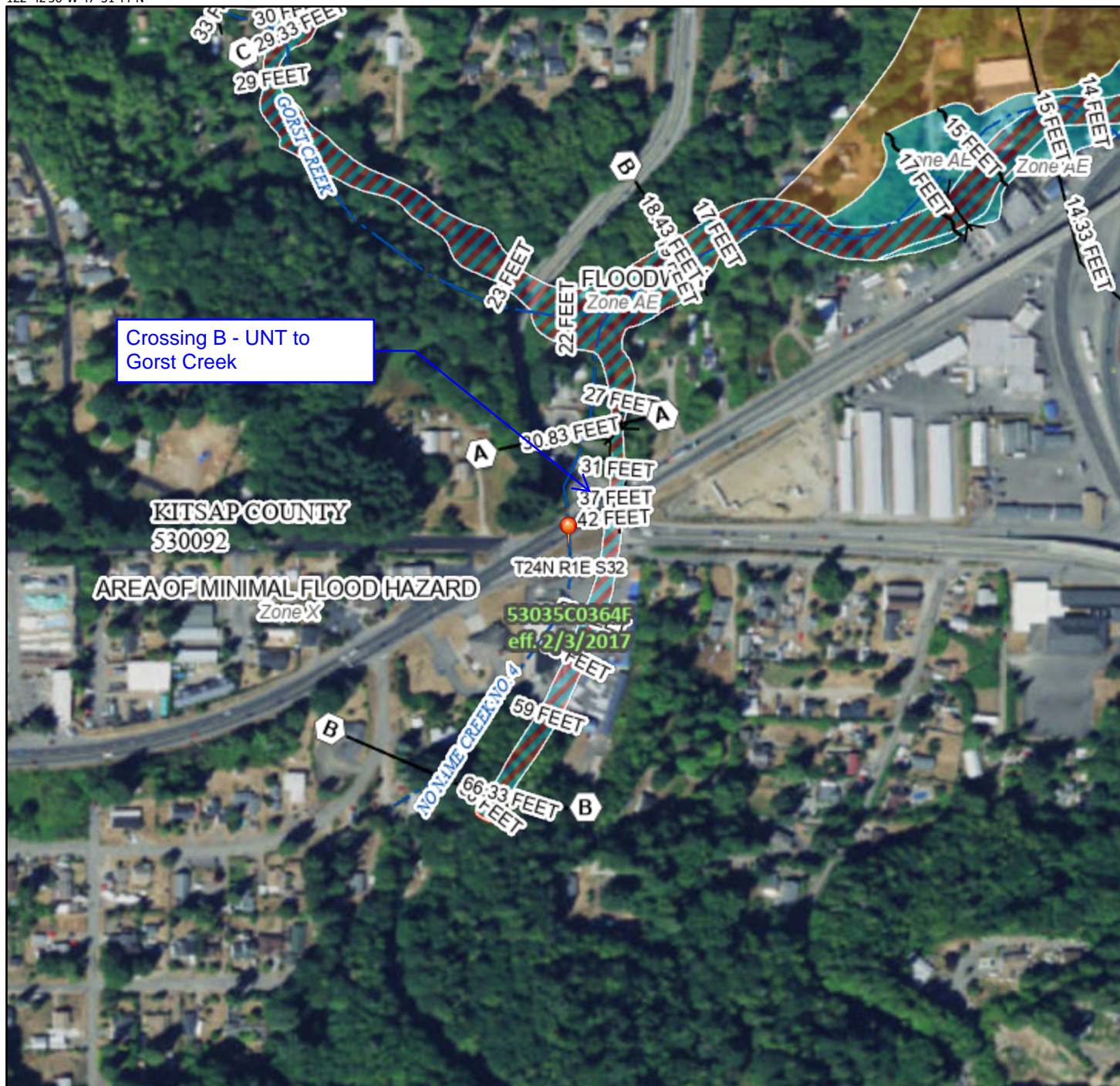
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/29/2022 at 4:07 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMette



122°42'36"W 47°31'44"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

122°41'59"W 47°31'19"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/29/2022 at 4:08 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMette



122°41'58"W 47°31'41"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

122°41'20"W 47°31'17"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

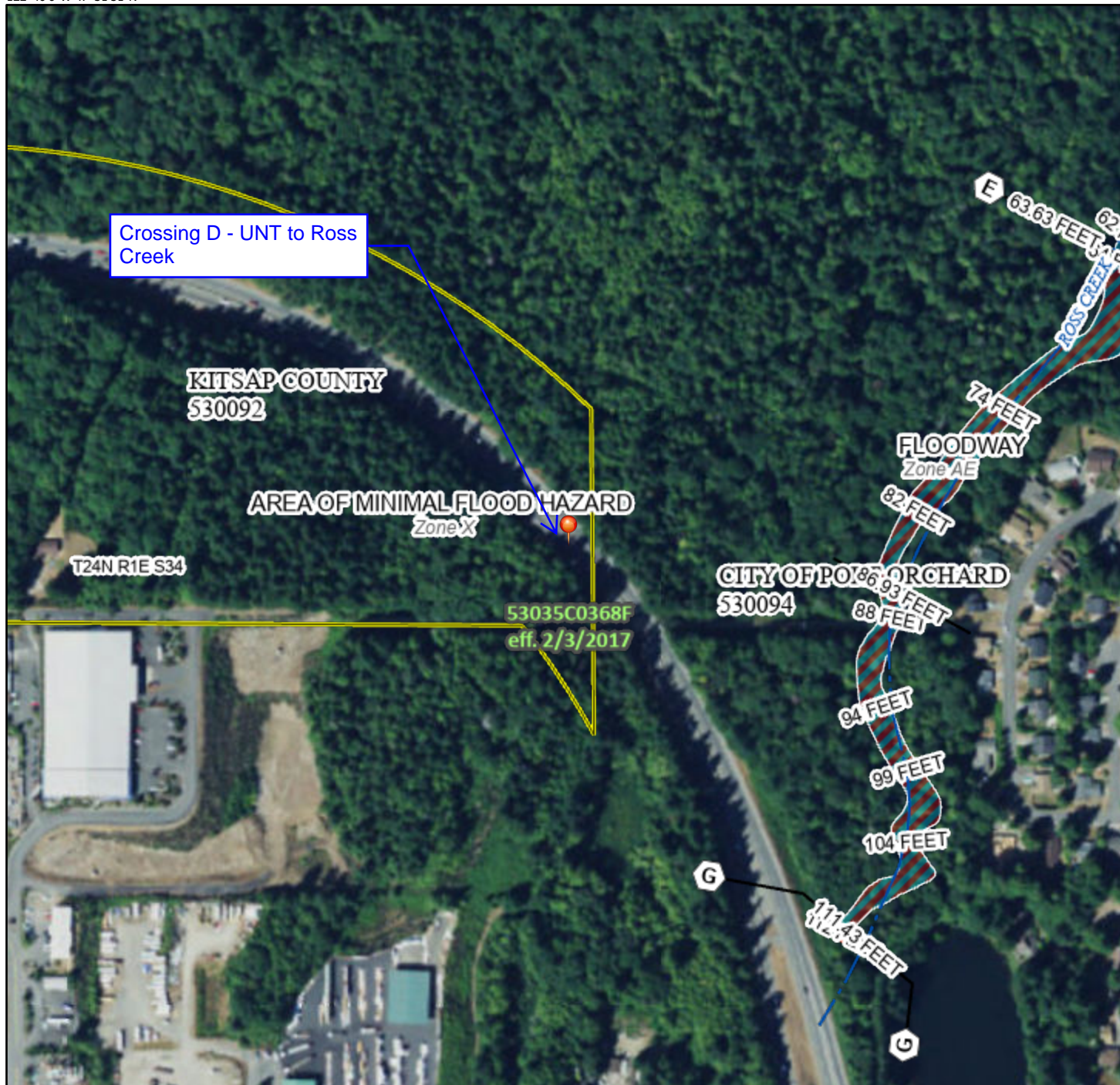
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/29/2022 at 4:09 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# National Flood Hazard Layer FIRMette



122°40'6"W 47°31'51"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/29/2022 at 4:11 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

122°39'29"W 47°31'27"N

# National Flood Hazard Layer FIRMette



122°37'14"W 47°32'15"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/29/2022 at 4:13 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# Soil Map—Kitsap County Area, Washington




**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey


12/29/2022  
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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington

Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

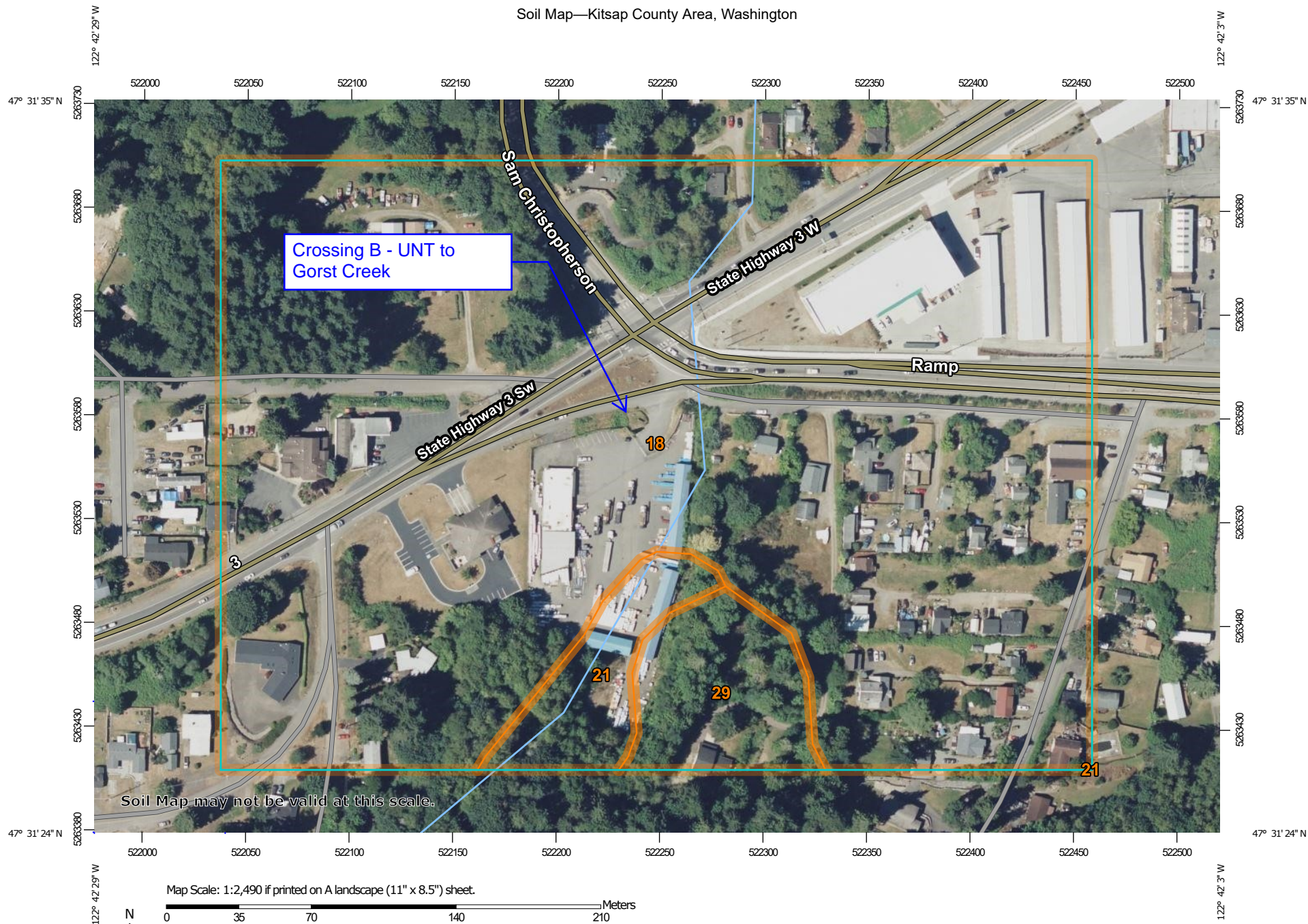
Date(s) aerial images were photographed: Nov 21, 2021—Nov 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alderwood gravelly sandy loam, 0 to 8 percent slopes	281.9	33.5%
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes	90.0	10.7%
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	79.3	9.4%
10	Dystic Xerorthents, 45 to 70 percent slopes	46.7	5.6%
14	Harstine gravelly ashy sandy loam, 0 to 6 percent slopes	21.9	2.6%
32	McKenna gravelly loam	9.4	1.1%
34	Neilton gravelly loamy sand, 0 to 3 percent slopes	165.4	19.7%
35	Neilton gravelly loamy sand, 3 to 15 percent slopes	26.4	3.1%
36	Neilton gravelly loamy sand, 15 to 30 percent slopes	9.3	1.1%
44	Ragnar fine sandy loam, 0 to 6 percent slopes	77.5	9.2%
45	Ragnar fine sandy loam, 6 to 15 percent slopes	28.8	3.4%
46	Ragnar fine sandy loam, 15 to 30 percent slopes	3.9	0.5%
<b>Totals for Area of Interest</b>		<b>840.5</b>	<b>100.0%</b>

# Soil Map—Kitsap County Area, Washington



Soil Map may not be valid at this scale.

Map Scale: 1:2,490 if printed on A landscape (11" x 8.5") sheet.

0 35 70 140 210 Meters

0 100 200 400 600 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 10N WGS84




Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey


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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington

Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2021—Nov 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18	Indianola loamy sand, 0 to 5 percent slopes	27.9	90.9%
21	Indianola-Kitsap complex, 45 to 70 percent slopes	1.2	3.9%
29	Kitsap silt loam, 8 to 15 percent slopes	1.6	5.2%
<b>Totals for Area of Interest</b>		<b>30.7</b>	<b>100.0%</b>

# Soil Map—Kitsap County Area, Washington



Map Scale: 1:4,620 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84




**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey

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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington

Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

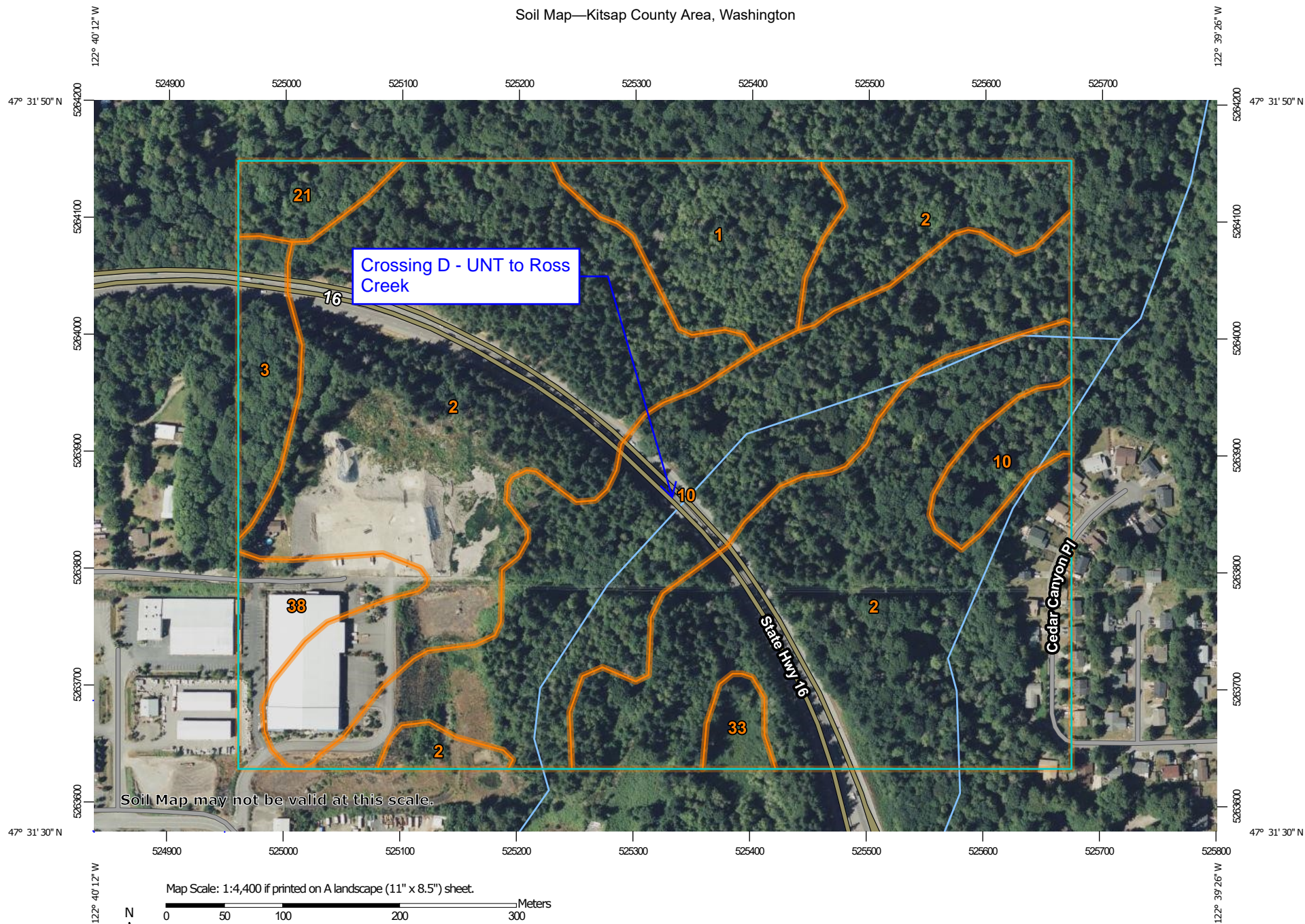
Date(s) aerial images were photographed: Jul 31, 2022—Aug 8, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

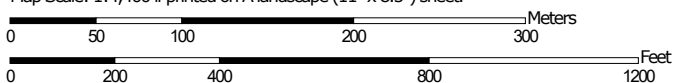
## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
15	Harstine gravelly ashy sandy loam, 6 to 15 percent slopes	0.3	0.3%
18	Indianola loamy sand, 0 to 5 percent slopes	0.3	0.4%
21	Indianola-Kitsap complex, 45 to 70 percent slopes	13.0	14.5%
28	Kitsap silt loam, 2 to 8 percent slopes	6.9	7.7%
29	Kitsap silt loam, 8 to 15 percent slopes	6.0	6.6%
37	Norma fine sandy loam	7.4	8.3%
62	Tacoma silt loam	13.1	14.6%
63	Urban land-Alderwood complex, 0 to 8 percent slopes	30.1	33.5%
<b>Totals for Area of Interest</b>		<b>89.7</b>	<b>100.0%</b>

# Soil Map—Kitsap County Area, Washington



Map Scale: 1:4,400 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84




**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey


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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington

Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

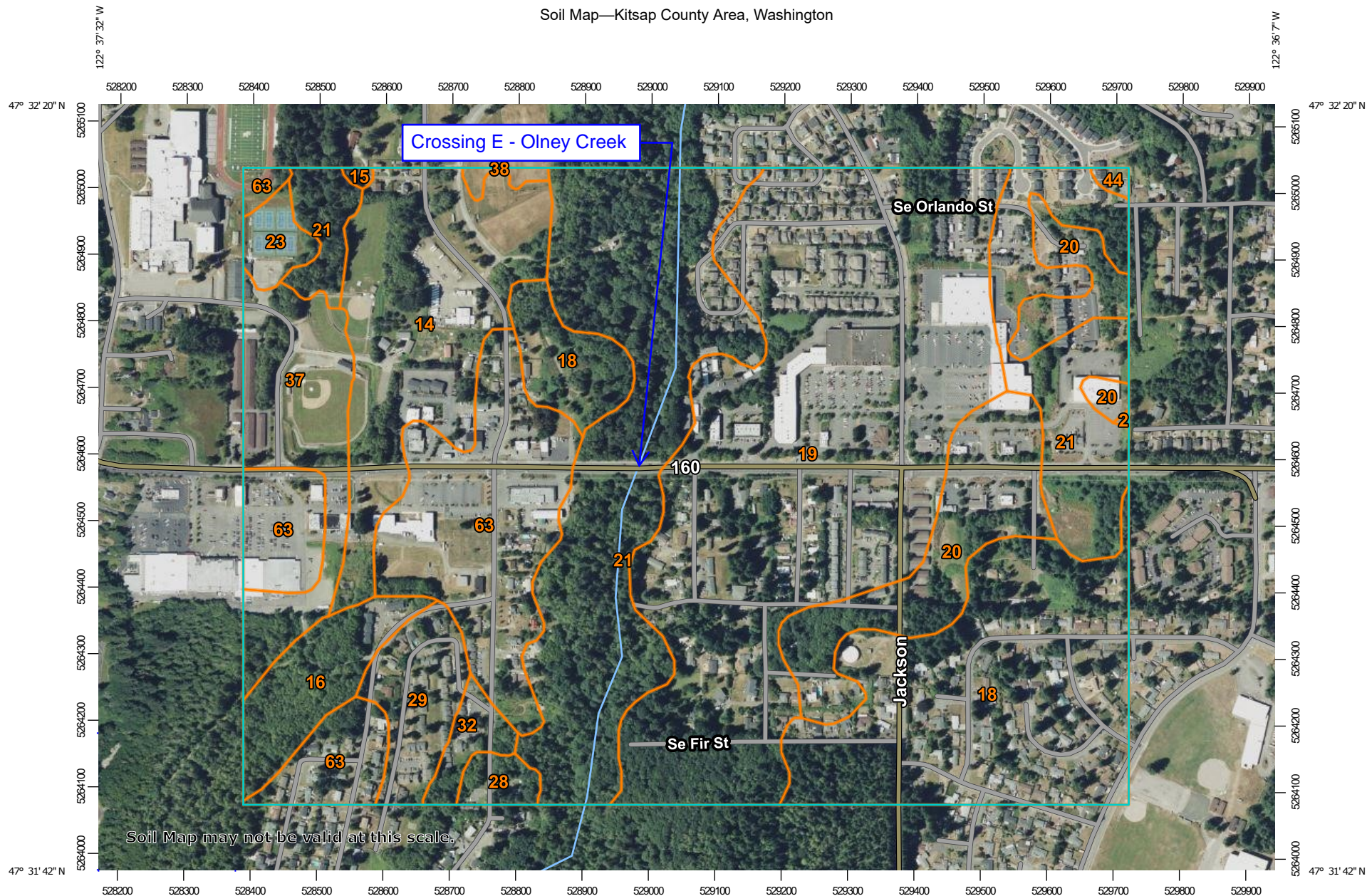
Date(s) aerial images were photographed: Nov 21, 2021—Nov 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

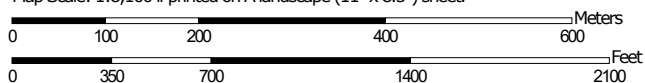
## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alderwood gravelly sandy loam, 0 to 8 percent slopes	6.2	6.7%
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes	56.4	61.1%
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	2.6	2.8%
10	Dystic Xerorthents, 45 to 70 percent slopes	21.4	23.2%
21	Indianola-Kitsap complex, 45 to 70 percent slopes	1.7	1.9%
33	Mukilteo peat	0.9	1.0%
38	Pits	3.0	3.2%
<b>Totals for Area of Interest</b>		<b>92.2</b>	<b>100.0%</b>

# Soil Map—Kitsap County Area, Washington



Map Scale: 1:8,100 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84




**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey


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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kitsap County Area, Washington

Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 21, 2021—Nov 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes	0.1	0.0%
14	Harstine gravelly ashy sandy loam, 0 to 6 percent slopes	28.0	8.8%
15	Harstine gravelly ashy sandy loam, 6 to 15 percent slopes	0.3	0.1%
16	Harstine gravelly ashy sandy loam, 15 to 30 percent slopes	8.4	2.7%
18	Indianola loamy sand, 0 to 5 percent slopes	44.3	14.0%
19	Indianola loamy sand, 5 to 15 percent slopes	82.7	26.1%
20	Indianola loamy sand, 15 to 30 percent slopes	21.3	6.7%
21	Indianola-Kitsap complex, 45 to 70 percent slopes	65.1	20.5%
23	Kapowsin gravelly ashy loam, 6 to 15 percent slopes	2.7	0.9%
28	Kitsap silt loam, 2 to 8 percent slopes	2.1	0.6%
29	Kitsap silt loam, 8 to 15 percent slopes	7.7	2.4%
32	McKenna gravelly loam	2.8	0.9%
37	Norma fine sandy loam	15.0	4.7%
38	Pits	0.7	0.2%
44	Ragnar fine sandy loam, 0 to 6 percent slopes	0.5	0.1%
63	Urban land-Alderwood complex, 0 to 8 percent slopes	35.1	11.1%
<b>Totals for Area of Interest</b>		<b>316.7</b>	<b>100.0%</b>

Stormwater Discharge Points List - Provided by WSDOT in Excel Spreadsheet Format, 3/14/2023

Area	Long	Lat	AssetReferenceText	AssetGUID	StateRouteNumber	StateRoute	RelRouteType	RelatedRouteType	RelRouteQual	DischargeName	LeftRightIndicator	WaterFlowDirection	DischargeRecipientCategory	DischargeRecipientType	ReceivingWaterbodyname	ReachCode
SR3 – MP 32	-122.739725	47.512701	WSDOT0000944267	{D530F8F9-8402-4C5B-BEAA-32B3DEF6754C}	<Null>		3 <Null>	<Null>	<Null>	003_032.103	L	NW	Land Surface	Forest		<Null>
SR3 – MP 32	-122.741352	47.511681	WSDOT0000944268	{0BAA7957-7331-42E5-8979-1B7D093F46BA}	<Null>		3 <Null>	<Null>	<Null>	003_032.104	L	<Null>	Land Surface	Forest		<Null>
SR3 – MP 32	-122.744945	47.509034	WSDOT0000944271	{B51DB087-4FAB-4943-9C19-1B98CB0BBACB}		3	3 <Null>	<Null>	<Null>	003_031.102	L	NE	Land Surface	Forest	<Null>	<Null>
SR3 – MP 32	-122.745378	47.508801	WSDOT0000944272	{02D10124-5687-4532-B945-6876435B1468}		3	3 <Null>	<Null>	<Null>	003_031.103	L	NW	Land Surface	Forest	<Null>	<Null>
SR3 – MP 32	-122.742925	47.51042	WSDOT0000944966	{E9D734A5-A68D-4099-B9F8-0E04F86DD5AB}		3	3 <Null>	<Null>	<Null>	003_32.110	L	W	Surface Water	River or Stream	unnamed	<Null>
SR3 – MP 32	-122.743463	47.51006	WSDOT0000961437	{409E8C20-821D-47B8-B571-B42093C61929}		3	3 <Null>	<Null>	<Null>	003_32.106	L	NW	Surface Water	River or Stream	unnamed	1.711E+13
SR3 – MP 32	-122.741871	47.511139	WSDOT0001266549	{0117657F-B183-4B17-B0B1-A38F2C94AF68}		3	3 <Null>	<Null>	<Null>	003_32.111	L	SW	Subsurface	Passive		<Null>
SR3 – MP 32	-122.744383	47.509082	WSDOT0000941199	{604BD647-7ADB-4DC5-BE60-C2DCA2DEF7C1}		3	3 <Null>	<Null>	<Null>	003_31.02	R	SW	Incoming	WSDOT MS4	<Null>	<Null>
SR3 / SR16	-122.70469	47.525271	WSDOT0000949714	{6981BC72-E98D-49D1-A9BD-46C1DB89DB397}	<Null>		3 <Null>	<Null>	<Null>	003_034.01	R	E	Surface Water	River or Stream		<Null>
SR3 / SR16	-122.704753	47.525631	WSDOT0000949729	{D28183BD-699C-40DE-B55C-F17DBFF4F89D}	<Null>		3 <Null>	<Null>	<Null>	003_034.102	L	N	Surface Water	River or Stream		<Null>
SR3 / SR16	-122.70549	47.525303	WSDOT0001266563	{9D7E3A1C-8E2F-400B-ACB3-C324E0112540}	<Null>		3 <Null>	<Null>	<Null>	003_34.108	L	W	Managed System	Municipality		<Null>
SR3 / SR16	-122.704811	47.525922	WSDOT0001266564	{5D89E446-D916-44B5-9680-CCE2FC693562}	<Null>		3 <Null>	<Null>	<Null>	003_34.109	L	N	Managed System	<Null>		<Null>
SR3 / SR16	-122.706614	47.524581	WSDOT0000958194	{2A5754F8-63DC-4EC0-90A7-0356FC1F672B}	<Null>		3 <Null>	<Null>	<Null>	003_34.11	R	S	Managed System	Municipality		<Null>
SR3 / SR16	-122.704161	47.525874	WSDOT0001266565	{3683A9B9-FF03-4EB4-87CC-3EDC59CBA9B6}	<Null>		3 <Null>	<Null>	<Null>	003_34.110	L	NE	Surface Water	River or Stream		<Null>
SR3 / SR16	-122.706497	47.524626	WSDOT0000958195	{CBC3279F-0F23-4D48-B090-4F2D66563C02}	<Null>		3 <Null>	<Null>	<Null>	003_34.12	R	S	Managed System	Municipality		<Null>
SR3 / SR16	-122.705803	47.524923	WSDOT0001266561	{4DE6013B-E691-47C1-BFBC-9934C6C77EF5}	<Null>		3 <Null>	<Null>	<Null>	003_34.16	R	E	Managed System	<Null>		<Null>
SR3 / SR16	-122.705425	47.525114	WSDOT0001266562	{0C76D363-5636-4FB6-BA21-01F1F598669C}	<Null>		3 <Null>	<Null>	<Null>	003_34.17	R	NE	Incoming	<Null>		<Null>
SR3 / SR16	-122.704117	47.525348	WSDOT0001266567	{257ECA60-CE70-4F08-BBD9-D482BB8FF816}	<Null>		16 <Null>	<Null>	<Null>	16_29.02	R	N	Incoming	<Null>		<Null>
SR16 Just east of Gorst	-122.689183	47.526059	WSDOT0000960107	{65C5A183-243F-4075-8831-9D9A356D10BA}	<Null>		16 <Null>	<Null>	<Null>	016_28.06	R	N	Surface Water	Marine	Sinclair Inlet	<Null>
SR16 Just east of Gorst	-122.689361	47.525922	WSDOT0001266595	{A66E2761-1E22-40AF-AE2B-4C7C1F3A5C29}	<Null>		16 <Null>	<Null>	<Null>	016_28.19	R	N	Surface Water	Marine		<Null>
SR16 Just east of Gorst	-122.689905	47.526045	WSDOT0001266596	{CFDCD226-2232-4FD9-B70B-EA8DA3A17BE8}	<Null>		16 <Null>	<Null>	<Null>	016_28.26	R	N	Surface Water	Marine		<Null>
SR16 Just east of Gorst	-122.690173	47.525616	WSDOT0001266597	{3CD95882-5491-477F-9622-F08DFE4C2AC3}	<Null>		16 <Null>	<Null>	<Null>	016_28.27	R	S	Incoming	<Null>		<Null>
SR16 Just east of Gorst	-122.690424	47.525597	WSDOT0001266598	{1034EA23-0812-47E8-83F1-236B9ADBE3A6}	<Null>		16 <Null>	<Null>	<Null>	016_28.28	R	W	Land Surface	Forest		<Null>
SR16 Just east of Gorst	-122.691502	47.525291	WSDOT0001266599	{F2FE520D-C083-4EED-BC EE-CE4B1DEE06AE}	<Null>		16 <Null>	<Null>	<Null>	016_28.29	R	N	Land Surface	Forest		<Null>
SR16 Just east of Gorst	-122.690602	47.52593	WSDOT0001266600	{2FBE7484-E1CC-4DCC-9617-DA0A0914AD44}	<Null>		16 <Null>	<Null>	<Null>	016_28.30	R	N	Surface Water	Marine		<Null>
SR16 Just east of Gorst	-122.696775	47.524652	WSDOT0001266568	{520AF9D5-C40C-418C-B860-B1F82843A7FA}	<Null>		16 <Null>	<Null>	<Null>	16_28.09	R	NW	Incoming	<Null>		<Null>
SR16 Just east of Gorst	-122.697911	47.525156	WSDOT0001266570	{AC5ED088-7C24-4254-85AD-6C7101E5C0EB}	<Null>		16 <Null>	<Null>	<Null>	16_28.111	L	N	Surface Water	<Null>		<Null>
SR16 Just east of Gorst	-122.697916	47.525163	WSDOT0001266571	{0CAB571A-120D-416A-BCD3-F5A7D048E81E}	<Null>		16 <Null>	<Null>	<Null>	16_28.112	L	N	Surface Water	<Null>		<Null>
SR16 Just east of Gorst	-122.697913	47.525161	WSDOT0001266572	{E9F5ED84-AC9E-4760-916C-AF5714C776D6}	<Null>		16 <Null>	<Null>	<Null>	16_28.113	L	N	Surface Water	<Null>		<Null>
SR16 Just east of Gorst	-122.698094	47.524775	WSDOT0001266569	{868379B4-93CB-4087-9903-A24C97F63A0A}	<Null>		16 <Null>	<Null>	<Null>	16_28.13	R	NE	Surface Water	River or Stream		<Null>
SR16 ~MP 18 S	-122.663101	47.528256	WSDOT0001266579	{677D33FA-C28E-4FA9-90C9-F984ECFEE66D}	<Null>		16 <Null>	<Null>	<Null>	016_27.104	L	SE	Land Surface	Forest		<Null>
SR16 ~MP 18 S	-122.6627	47.526896	WSDOT0001266581	{774B9A37-60A8-4ED9-85D9-79A809F46A67}	<Null>		16 <Null>	<Null>	<Null>	16_27.01	R	NE	Land Surface	Forest		<Null>
SR166 MP 4.5	-122.614493	47.533841	WSDOT0000956080	{86905277-9A67-42BC-8924-61CA2059F2FD}	<Null>		166 <Null>	<Null>	<Null>	166_4.01	R	SW	Land Surface	Forest	<Null>	<Null>

Area	Long	Lat	MixedFlow	ConveyanceMode	AssociatedFeatureType	FromOpenChannelDitchShape	PipeDiameter	PipeSizeUnits	DischargePointRole	Notes	LocationCollectionMethod
SR3 – MP 32	-122.739725	47.512701	<Null>	Open	Pipe Concrete	<Null>		18 Inches	Primary		Field: Mapping Grade GPS
SR3 – MP 32	-122.741352	47.511681	<Null>	Open	Ditch Vegetated	<Null>	<Null>	<Null>	Primary		Field: Mapping Grade GPS
SR3 – MP 32	-122.744945	47.509034	<Null>	Open Pervious	Ditch Vegetated	Trapezoidal Equal Sides	<Null>	<Null>	Primary	<Null>	Field: Mapping Grade GPS
SR3 – MP 32	-122.745378	47.508801	<Null>	Open Pervious	Pipe Plastic	<Null>		18 Inches	Primary		Field: Mapping Grade GPS
SR3 – MP 32	-122.742925	47.51042	NA	Open	Pipe Plastic	<Null>		18 Inches	Primary	wsdot pipe flows to wsdot veg ditch flows to forested slope to stream. changed discharge name from 003_32.101 to 003_32.110	Field: Mapping Grade GPS
SR3 – MP 32	-122.743463	47.51006	<Null>	Open Pervious	Ditch Vegetated	Trapezoidal Unequal Sides	<Null>	<Null>	Primary	WSDOT veg ditch flows to slope flows to stream.	Field: Mapping Grade GPS
SR3 – MP 32	-122.741871	47.511139	<Null>	Open Pervious	Ditch Vegetated	Trapezoidal Equal Sides	<Null>	<Null>	Primary		Field: Mapping Grade GPS
SR3 – MP 32	-122.744383	47.509082	<Null>	Closed	Pipe Metal	<Null>		18 Inches	Primary		Field: Mapping Grade GPS
SR3 / SR16	-122.70469	47.525271	<Null>	Open	Pipe Concrete	<Null>		12 Inches	Primary		Field: Mapping Grade GPS
SR3 / SR16	-122.704753	47.525631	<Null>	Open	Pipe Metal	<Null>		18 Inches	Primary	pouint tagged is drain cover. outfall to stream exact lOcation could not be determined	Field: Mapping Grade GPS
SR3 / SR16	-122.70549	47.525303	<Null>	Open Pervious	Curb Asphalt	<Null>	<Null>	<Null>	Primary	curb flows down frone drive	Field: Mapping Grade GPS
SR3 / SR16	-122.704811	47.525726	<Null>	Open Impervious	Curb Concrete	<Null>	<Null>	<Null>	Primary	curb flows to curb	Field: Mapping Grade GPS
SR3 / SR16	-122.706614	47.524581	<Null>	<Null>	Ditch Vegetated	<Null>	<Null>	<Null>	Primary	ditch from pleasant st flows to wsdot ditch	Office: GIS WSDOT
SR3 / SR16	-122.704161	47.525874	<Null>	Open Pervious	Curb Asphalt	<Null>	<Null>	<Null>	Primary	curb ends and flows to stream	Field: Mapping Grade GPS
SR3 / SR16	-122.706497	47.524626	<Null>	<Null>	Ditch Vegetated	<Null>	<Null>	<Null>	Primary	ditch from pleasant st to wsdot ditch	Office: GIS WSDOT
SR3 / SR16	-122.705803	47.524923	<Null>	Open Impervious	Curb Concrete	<Null>	<Null>	<Null>	Primary	curb flows to structure at fie department	Field: Mapping Grade GPS
SR3 / SR16	-122.705425	47.525114	<Null>	Open Pervious	Pipe Metal	<Null>		12 Inches	Primary		Field: Mapping Grade GPS
SR3 / SR16	-122.704117	47.525348	<Null>	Open Impervious	Curb Asphalt	<Null>	<Null>	<Null>	Primary	curb flows into ditch from frontage rd.	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.689183	47.526059	Waters of the State	Open Pervious	Pipe Metal	<Null>		15 Inches	Primary	WSDOT drain inlet flows to pipe flows to Sinclair Inlet.	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.689361	47.525922	<Null>	Open Pervious	Curb Asphalt	<Null>	<Null>	<Null>	Primary	curb ends and flows to water	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.689905	47.526045	<Null>	Open Pervious	Pipe Concrete	<Null>	<Null>	<Null>	Primary	pipe drains to bay, mostly submerged	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.690173	47.525616	<Null>	Open Pervious	Pipe Plastic	<Null>		8 Inches	Primary	pipe drains to drain inlet	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.690424	47.525597	<Null>	Open Pervious	Pipe Metal	<Null>		15 Inches	Primary	pipe drains to low forested area	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.691502	47.525291	<Null>	Open Pervious	Pipe Metal	<Null>		15 Inches	Primary	pipe drain to forest	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.690602	47.52593	<Null>	Open Pervious	Pipe Concrete	<Null>		18 Inches	Primary	pipe drains to inclair inlet	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.696775	47.524652	<Null>	Closed Impervious	Pipe Metal	<Null>		12 Inches	Primary	drainage from 3555 kitsap auto outlet	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.697911	47.525156	<Null>	Closed Impervious	Pipe Metal	<Null>		12 Inches	Primary	pipe to through going structure	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.697916	47.525163	<Null>	Closed Impervious	Curb Asphalt	<Null>	<Null>	<Null>	Primary	curb to through going structure	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.697913	47.525161	Waters of the State	<Null>	<Null>	<Null>	<Null>	<Null>	Primary	stream through structure ith mixed flow	Field: Mapping Grade GPS
SR16 Just east of Gorst	-122.698094	47.524775	Waters of the State	Open Pervious	Ditch Vegetated	Trapezoidal Unequal Sides	<Null>	<Null>	Primary	ditch flows to stream into grate inlet	Field: Mapping Grade GPS
SR16 ~MP 18 S	-122.663101	47.528256	<Null>	Open Pervious	Ditch Vegetated	Trapezoidal Equal Sides	<Null>	<Null>	Primary	ditch flows down forested slope possibly to culvert pipe	Field: Mapping Grade GPS
SR16 ~MP 18 S	-122.6627	47.526896	<Null>	Open Pervious	Pipe Concrete	<Null>		18 Inches	Primary	unverified pipe outlet drains to forested slope	Field: Mapping Grade GPS
SR166 MP 4.5	-122.614493	47.533841	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Primary	RFIP ditch to forest.	Office: GIS WSDOT

Area	Long	Lat	LocationCollectionProgram	SWAttributeVerified	SWLocationVerified	GPSDeviceName	LifeCycleCurrentStatus	LifeCycleStatusDate	CollectionDate	FeatureCurrentMeasurementDate	LastUpdatedBy	RecordUpdateDate	RecordCreatedBy	RecordCreateDate	Status	FeatureRetireDate	OffsetDistance
SR3 – MP 32	-122.739725	47.512701	WSDOT ESO	Yes	Yes	Algiz 10	Active	7/25/2017	6/23/2009	7/25/2017	HARRIE	7/27/2017 14:26	<Null>	6/27/2012	Existing	<Null>	<Null>
SR3 – MP 32	-122.741352	47.511681	WSDOT ESO	Yes	Yes	Algiz 10	Active	7/25/2017	6/23/2009	7/25/2017	WILLIAG	9/18/2017 13:35	<Null>	6/27/2012	Existing	<Null>	<Null>
SR3 – MP 32	-122.744945	47.509034	WSDOT ESO	Yes	Yes	ToughPad	Active	11/9/2016	6/23/2009	11/9/2016	HALLT	12/19/2016 11:46	SFIFieldCrew	6/27/2012	Existing	<Null>	<Null>
SR3 – MP 32	-122.745378	47.508801	WSDOT ESO	Yes	Yes	ToughPad	Active	11/9/2016	6/23/2009	11/9/2016	HALLT	12/19/2016 11:46	SFIFieldCrew	6/27/2012	New	<Null>	<Null>
SR3 – MP 32	-122.742925	47.51042	WSDOT ESO	Yes	Yes	Algiz 10	Active	7/25/2017	3/22/2011 17:56	7/25/2017	CUNDIFB	10/25/2022 8:40	<Null>	6/27/2012	New	<Null>	<Null>
SR3 – MP 32	-122.743463	47.51006	WSDOT ESO	Yes	Yes	ToughPad	Active	11/9/2016	5/23/2013	11/9/2016	HALLT	12/19/2016 11:46	SFIFieldCrew	7/24/2013	New	<Null>	<Null>
SR3 – MP 32	-122.741871	47.511139	WSDOT ESO	Yes	Yes	Algiz 10	Active	7/25/2017	7/25/2017	7/25/2017	WILLIAG	9/18/2017 13:36	<Null>	7/27/2017 14:25	New	<Null>	<Null>
SR3 – MP 32	-122.744383	47.509082	WSDOT ESO	Yes	Yes	ToughPad	Other Add Note	11/9/2016	3/22/2011 17:51	11/9/2016	HALLT	12/19/2016 11:46	SFIFieldCrew	6/27/2012	Retired	11/9/2016	<Null>
SR3 / SR16	-122.70469	47.525271	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	6/24/2009	8/17/2017	ROBERTD	9/18/2017 11:09	<Null>	6/27/2012	Existing	<Null>	<Null>
SR3 / SR16	-122.704753	47.525631	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	6/24/2009	8/17/2017	ROBERTD	9/18/2017 13:42	<Null>	6/27/2012	Existing	<Null>	<Null>
SR3 / SR16	-122.70549	47.525303	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	ROBERTD	8/31/2017 11:22	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR3 / SR16	-122.704811	47.525726	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	WILLIAG	9/18/2017 13:49	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR3 / SR16	-122.706614	47.524581	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	<Null>	8/17/2017	WILLIAG	8/21/2017 6:11	<Null>	2/19/2013	New	<Null>	<Null>
SR3 / SR16	-122.704161	47.525874	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	WILLIAG	2/27/2018 7:19	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR3 / SR16	-122.706497	47.524626	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	<Null>	8/17/2017	WILLIAG	8/21/2017 6:11	<Null>	2/19/2013	New	<Null>	<Null>
SR3 / SR16	-122.705803	47.524923	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	ROBERTD	9/18/2017 12:48	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR3 / SR16	-122.705425	47.525114	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	ROBERTD	8/31/2017 10:47	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR3 / SR16	-122.704117	47.525348	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/17/2017	8/17/2017	8/17/2017	ROBERTD	8/31/2017 10:50	<Null>	8/21/2017 6:11	New	<Null>	<Null>
SR16 Just east of Gorst	-122.689183	47.526059	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	4/29/2013	8/30/2017	WILLIAG	9/20/2017 8:54	<Null>	7/24/2013	New	<Null>	<Null>
SR16 Just east of Gorst	-122.689361	47.525922	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	9/20/2017 8:56	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.689905	47.526045	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	9/18/2017 10:49	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.690173	47.525616	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	8/31/2017 6:18	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.690424	47.525597	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	9/18/2017 10:51	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.691502	47.525291	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	9/20/2017 8:58	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.690602	47.52593	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/30/2017	8/30/2017	8/30/2017	WILLIAG	9/18/2017 10:50	<Null>	8/31/2017 6:18	New	<Null>	<Null>
SR16 Just east of Gorst	-122.696775	47.524652	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/21/2017	8/21/2017	8/21/2017	ROBERTD	8/31/2017 12:58	<Null>	8/22/2017 15:44	New	<Null>	<Null>
SR16 Just east of Gorst	-122.697911	47.525156	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/22/2017	8/22/2017	8/22/2017	ROBERTD	9/20/2017 10:13	<Null>	8/22/2017 15:44	New	<Null>	<Null>
SR16 Just east of Gorst	-122.697916	47.525163	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/22/2017	8/22/2017	8/22/2017	ROBERTD	9/20/2017 10:13	<Null>	8/22/2017 15:44	New	<Null>	<Null>
SR16 Just east of Gorst	-122.697913	47.525161	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/22/2017	8/22/2017	8/22/2017	ROBERTD	9/20/2017 10:12	<Null>	8/22/2017 15:44	New	<Null>	<Null>
SR16 Just east of Gorst	-122.698094	47.524775	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/22/2017	8/22/2017	8/22/2017	WILLIAG	2/27/2018 9:19	<Null>	8/22/2017 15:44	New	<Null>	<Null>
SR16 ~MP 18 S	-122.663101	47.528256	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/23/2017	8/23/2017	8/23/2017	WILLIAG	9/18/2017 8:48	<Null>	8/24/2017 15:39	New	<Null>	<Null>
SR16 ~MP 18 S	-122.6627	47.526896	WSDOT ESO	Yes	Yes	Algiz 10	Active	8/24/2017	8/24/2017	8/24/2017	WILLIAG	9/18/2017 8:52	<Null>	8/24/2017 15:39	New	<Null>	<Null>
SR166 MP 4.5	-122.614493	47.533841	WSDOT ESO	<Null>	<Null>	<Null>	Active	11/10/1982	<Null>	<Null>	hallt	6/18/2015 12:51	JHusby	1/14/2013	New	<Null>	<Null>

Area	Long	Lat	OffsetType	Photo1	Photo1Desc	Photo2	Photo2Desc	Photo3	Photo3Desc	InvolvedNonWSDOTPartyName	NonWSDOTJurisdiction	PrimaryFunction	BMPTypelD	WSDOTownership	WSDOTresponsible	LandUse	AccessInstructions	LocationFieldNotes	MaintenanceConcerns
SR3 – MP 32	-122.739725	47.512701	None	1644-1645	looking east; west			<Null>	<Null>	N/A	Bremerton	System Discharge	<Null>	<Null>	<Null>	<Null>		<Null>	<Null>
SR3 – MP 32	-122.741352	47.511681	None	1646/1647	looking north; west			<Null>	<Null>	N/A	Bremerton	System Discharge	<Null>	<Null>	<Null>	<Null>		<Null>	<Null>
SR3 – MP 32	-122.744945	47.509034	None	1652-1655	looking south; south; north	<Null>	<Null>	<Null>	<Null>	<Null>	Bremerton	System Discharge	<Null>	<Null>	<Null>	Highway	<Null>	<Null>	<Null>
SR3 – MP 32	-122.745378	47.508801	None	1656/1657	looking east; west			<Null>	<Null>	<Null>	Bremerton	System Discharge	<Null>	<Null>	<Null>	Highway		<Null>	<Null>
SR3 – MP 32	-122.742925	47.51042	None	003.32.101.1529	LOOKING NORTH			<Null>	<Null>	NA	Bremerton	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 – MP 32	-122.743463	47.51006	None	32.106	vicinity			<Null>	<Null>	<Null>	Bremerton	System Discharge	<Null>	<Null>	<Null>	Highway		<Null>	<Null>
SR3 – MP 32	-122.741871	47.511139	<Null>	2815				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 – MP 32	-122.744383	47.509082	None	003.31.01.1528	LOOKING SE			<Null>	<Null>	ALPINE TIMBER	Bremerton	System Discharge	<Null>	<Null>	<Null>	Highway		<Null>	<Null>
SR3 / SR16	-122.70469	47.525271	None	1660-1662	looking west; south; east			<Null>	<Null>	N/A	Kitsap County	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.704753	47.525631	None	1695	looking northeast			<Null>	<Null>	N/A	Kitsap County	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.70549	47.525303	<Null>	2705				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.704811	47.525726	<Null>	2712				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.706614	47.524581	None	2683				<Null>	<Null>	Kitsap County	Kitsap County	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.704161	47.525874	<Null>	2714				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.706497	47.524626	None	2684				<Null>	<Null>	Kitsap County	Kitsap County	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.705803	47.524923	<Null>	2692				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.705425	47.525114	<Null>	2694				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR3 / SR16	-122.704117	47.525348	<Null>	2733				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.689183	47.526059	None	28.06	vicinity	2982		<Null>	<Null>		Bremerton	System Discharge	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.689361	47.525922	<Null>	2983				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.689905	47.526045	<Null>	2985				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.690173	47.525616	<Null>	2986				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.690424	47.525597	<Null>	2990				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.691502	47.525291	<Null>	2994				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.690602	47.52593	<Null>	2996				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.696775	47.524652	<Null>	2752				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.697911	47.525156	<Null>	2781				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.697916	47.525163	<Null>	2783				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.697913	47.525161	<Null>	2782				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 Just east of Gorst	-122.698094	47.524775	<Null>	2778				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 ~MP 18 S	-122.663101	47.528256	<Null>	2897				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR16 ~MP 18 S	-122.6627	47.526896	<Null>	2903				<Null>	<Null>		<Null>	<Null>	<Null>	Yes	Yes	Highway		<Null>	<Null>
SR166 MP 4.5	-122.614493	47.533841	None	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	Port Orchard	System Discharge	<Null>	Unknown	No	Highway	<Null>	<Null>	<Null>

Area	Long	Lat	AccessoryEquip	AsBuiltPlanNum	ContractNum	ProjectName	ActualWorkStartDate	PhysicalCompletionDate	FeatureDesignDate	FeatureBuildDate	DesignStandardRefDoc	DataDevelopmentNotes
SR3 – MP 32	-122.739725	47.512701	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.741352	47.511681		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.744945	47.509034		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.745378	47.508801		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.742925	47.51042		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.743463	47.51006		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.741871	47.511139		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 – MP 32	-122.744383	47.509082		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 / SR16	-122.70469	47.525271		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 / SR16	-122.704753	47.525631		<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR3 / SR16	-122.70549	47.525303	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
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SR3 / SR16	-122.705803	47.524923	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
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SR16 Just east of Gorst	-122.689183	47.526059	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
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SR16 Just east of Gorst	-122.690424	47.525597	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR16 Just east of Gorst	-122.691502	47.525291	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR16 Just east of Gorst	-122.690602	47.52593	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
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SR16 Just east of Gorst	-122.697911	47.525156	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
SR16 Just east of Gorst	-122.697916	47.525163	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
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SR166 MP 4.5	-122.614493	47.533841	<Null>		7202	2384 SR 160 KARCHER ROAD TO BABY DOLL ROAD	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>